Nile University

BRAIN BOOST
CSCI313 - SRS DOCUMENT

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1. Introduction

1.1 Purpose of the document

Purpose of the Document: The purpose of this document is to provide a detailed description of the requirements and specifications for an E-Learning System. It aims to define the functionality, boundaries, and constraints of the system. This SRS will serve as a reference for the development team, stakeholders, and other parties involved in the project.

1.2 Scope of the project

The E-Learning System is intended to provide an online platform for educational purposes that facilitates the creation, delivery, and management of learning materials. The system will support various types of courses, assessments, and collaboration tools to enhance the learning experience. It will also include features such as user management, progress tracking, and reporting.

The system will primarily focus on delivering content through web and mobile interfaces. It will not cover physical classroom management or in-person teaching activities.

1.3 Technologies used.

The E-Learning System will be built using a variety of technologies to achieve the desired functionality. The specific technologies used may vary based on the implementation requirements and preferences of the development team. Some commonly used technologies for developing E-Learning Systems include:
Programming Languages: Java, PHP, Python, or Ruby
Web Technologies: HTML5, CSS3, JavaScript
Frameworks: Laravel, Ruby on Rails, Django
Relational Database Management System (RDBMS): MySQL, PostgreSQL
Version Control System: Git
Cloud Services: AWS, Azure, Google Cloud
The choice of technologies will depend on factors such as scalability, security, development team expertise, and integration capabilities.

1.4 Intended Audience

The E-Learning System is designed for various stakeholders, including:
Learners: Students.
Instructors: teaching assistance, and Professors.
Administrators: System administrators responsible for managing the platform and user accounts.
Technical Support: Staff responsible for assisting users and resolving technical issues.

1.5 Overview of the Document

The purpose is to define the functionality and boundaries of the system, while the scope describes the areas covered and not covered by the project. The technologies mentioned are potential options for implementing the system, and the intended audience identifies the primary users of the platform.
This document serves as a starting point for further discussions, design, and development of the E-Learning System.

2. Overall Description

2.1 Product Perspective

Our E-learning System is an educational software that provides users with the means to access or upload education material of their university, track their progress or others' progress, and host activities or assessments. The e-learning system will incorporate a range of course types, assessments, and collaboration tools to enrich the learning journey. Additionally, it will encompass functionalities like user administration, progress monitoring, and reporting capabilities.

2.1.1 Product Function

University Perspective:

System Access:

Users access the e-learning system by opening the application or visiting the website.
A sign-in screen is presented, allowing users to log in with their credentials (username/email and password).

Course Management:

Universities can create new courses within the e-learning system.
They provide course details such as title, description, and learning objectives.
Course materials, including lecture notes, presentations, and multimedia resources, can be uploaded and organized.
Universities can set course schedules, including start and end dates, and define the duration of each module or topic.

User Management:

Universities can manage user accounts, including students, professors, and administrators.
User registration and authentication processes are handled within the system.
User roles and permissions are assigned appropriately to control access to courses and system features.

Student Perspective:

System Access:

Students open the e-learning application or visit the website.

User Profile:

Students sign-in with their university assigned email address.
Students enter their information and create their profile through the sign-in process.
Profiles may include details such as name, contact information, and academic program.

Course Enrolment:

Students browse available courses and select the ones they wish to enrol in.
They can view course descriptions, prerequisites, and availability.
Students submit enrolment requests, which are approved by the university if the course capacity permits.

Learning Interactions:

Students access course materials, including lectures, readings, and assignments, within the e-learning system.
They navigate through course modules and topics, following the prescribed learning sequence.
Students engage with learning content, participate in discussions, and collaborate with peers and instructors through assessments, assignments, and chats.

Assessments and Progress Tracking:

Students' complete quizzes, assignments, and exams as part of their learning progress.
They receive immediate feedback and grades for assessments.
The system tracks individual progress, including completed modules, grades, and overall course progress.

Communication and Support:

University instructors can add announcements for any upcoming events.
Students can communicate with instructors and classmates through messaging or discussion forums integrated into the system.
They can seek help and support from instructors, submit questions, and participate in group activities.

Additional learning resources, such as supplementary materials or external references, may be accessible within the system.

2.2. User Characteristics

The user should have basic knowledge of how to use websites.
The user should have acceptable internet connectivity.
The user should have a solid understanding of the English language, as most of the technical terms are in English.

2.3. Constraints

The phone or laptop of the user will need to be connected to the internet for the website to launch.
Sign-in and password will be required to access the user's current course catalogue and allow him/her to continue progress on the courses.
The website should be compatible with different operating systems and browsers to ensure accessibility for a wide range of users.

2.4. Assumptions and Dependencies

Equipment and Internet Access:

Users have access to the necessary Equipment (computers, tablets, smartphones) and a reliable internet connection to engage in online learning activities.

Digital Literacy:

Users possess basic digital literacy skills, including the ability to navigate online platforms, use common software applications, and understand fundamental online communication tools.

User Motivation:

Users are motivated and disciplined enough to actively engage with the e-learning content, complete assignments, and participate in discussions.

Language Proficiency:

Users have sufficient proficiency in the language used for instructional content, assessments, and communication within the e-learning platform.

Security Measures:

Adequate security measures are in place to protect user data, maintain privacy, and prevent unauthorized access to the e-learning platform.

Support and Training:

Users have access to adequate support resources and training materials to assist them in navigating the e-learning platform and resolving technical issues.

User Engagement:

The success of e-learning depends on user engagement, which relies on factors such as the quality of content, the effectiveness of instructional design, and the platform's user interface.

3. Functional Requirements

3.1. Functional Requirements

Title: User registration
Description: Users should be able to register their accounts by inputting username/email and password that are assigned by the university.
Required Information:

- Username/Email
- Password (at least 8 characters)

3.2. Functional Requirements

Title: Login
Description: Registered users (Students / Professors) should be able to log in using their credentials (e.g., username/email and password)**.**

3.3. Functional Requirements

Title: Password Management
Description: The system should include features for password reset, recovery, and security options like two-factor authentication if required**.**

3.4. Functional Requirements

Title: Course Creation and Management
Description: The system should allow professors to create new courses, including adding course descriptions, objectives, and learning outcomes.

3.5. Functional Requirements

Title: Student Management
Description: Professors and administrators should have the ability to view and manage student enrolment, including adding or removing students from courses.

3.6. Functional Requirements

Title: Grading and Evaluation

Description: Professors should be able to grade assignments, quizzes, and exams submitted by students through the platform.

3.7. Functional Requirements

Title: Course Enrolment/Unenrolment
Description: The system should allow students to browse available courses and enrol in the ones they are interested in or unenroll in the ones they no longer want.

3.8. Functional Requirements

Title: Learning Material Access
Description: Students should have access to course materials such as lecture notes, presentations, videos, and assignments**.**

3.9. Functional Requirements

Title: Assignment Submission
Description: Students should be able to submit assignments and projects through the platform, with the ability to receive confirmation of submission and feedback from instructors.

3.10. Functional Requirements

Title: Assessment and Feedback
Description: System should support online quizzes, tests, and exams, as well as provide feedback and grades to students upon completion.

4. Non-Functional Requirements

4.1 Usability

The system should have an intuitive user interface and navigation, ensuring ease of use for both instructors and students.

4.2 Performance

The system should be capable of handling concurrent users and high traffic without significant degradation in performance.

4.3 Security

The platform should prioritize data security and user privacy, adhering to industry standards for data encryption and secure connections.

4.4 Reliability

The system should maintain high availability, ensuring minimal downtime for users across different time zones and locations.

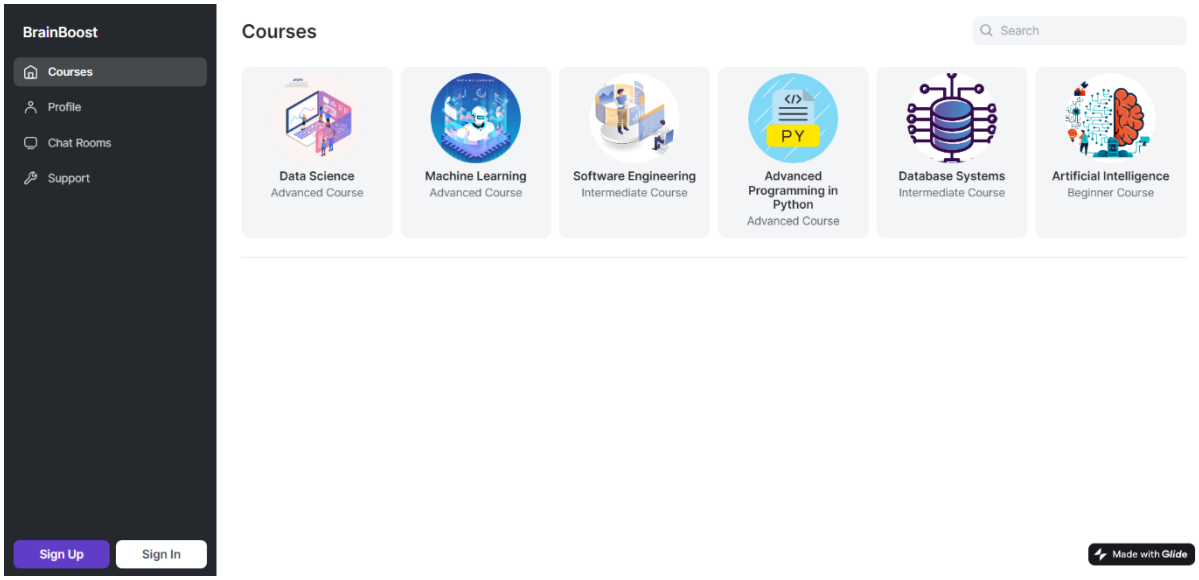
4.5. **Scalability**

The platform should be designed to scale seamlessly as the number of users and courses grows, without compromising performance.

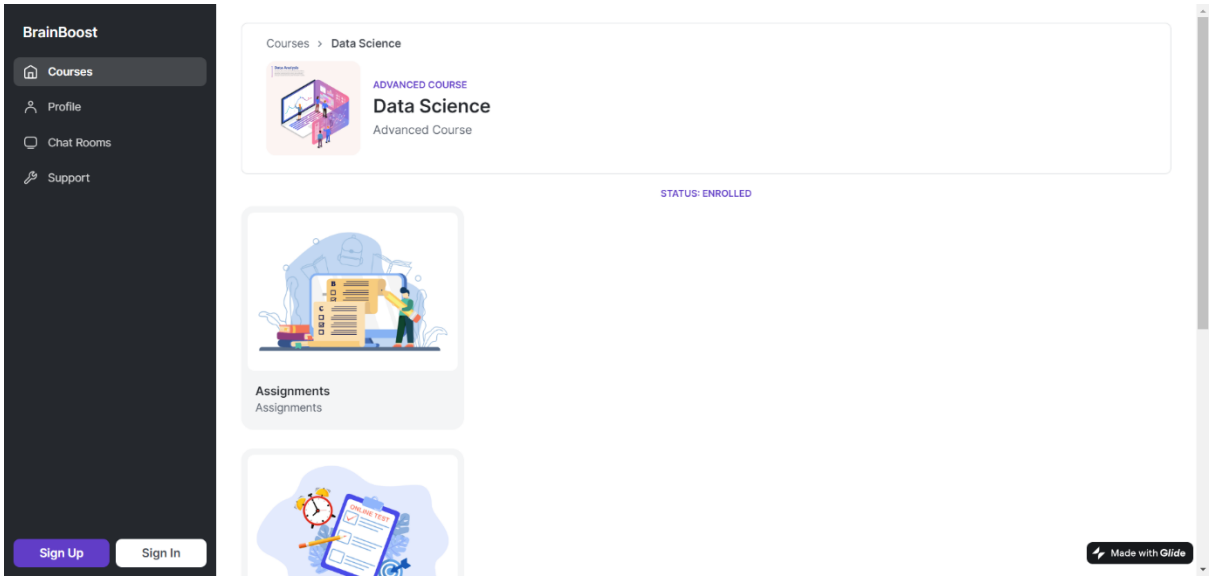
4.6. **Technical Support**

To maintain the reliability and availability of the platform, a technical support feature is necessary.

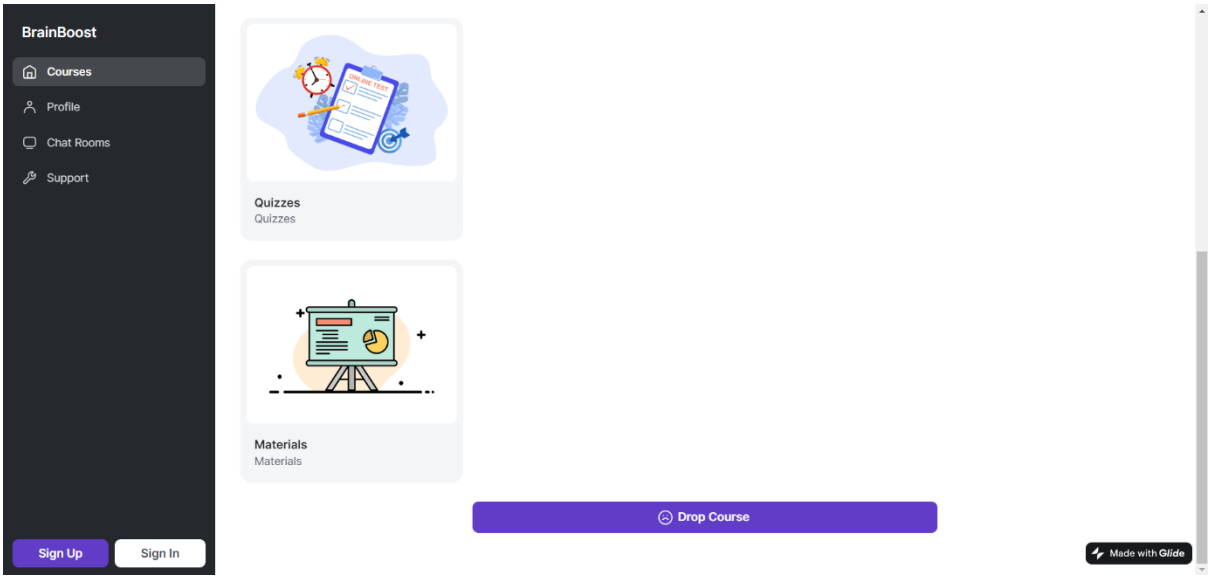
5. Interface



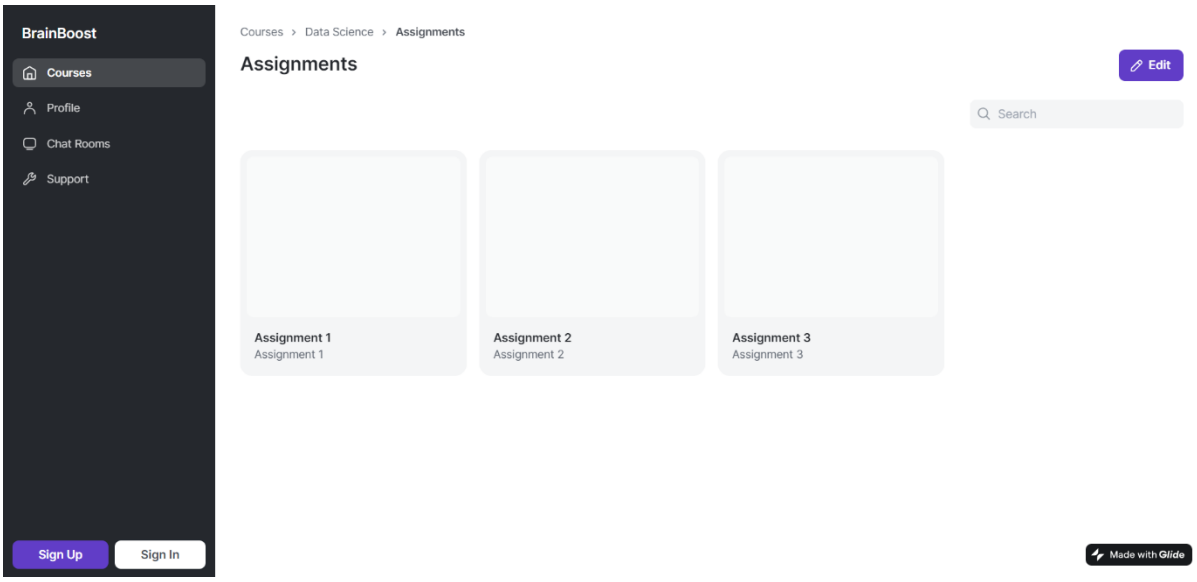
The courses tab shows you the courses you are enrolled in.



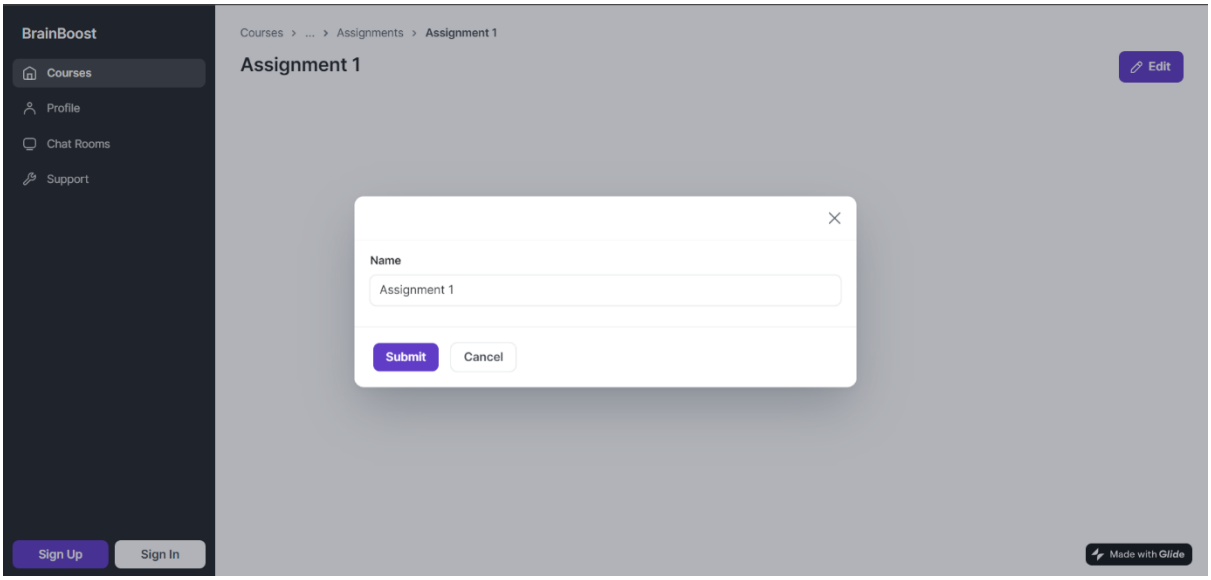
When you click on a certain course it shows you the Assignments, Quizzes, Materials and the status (enrolled/unenrolled)



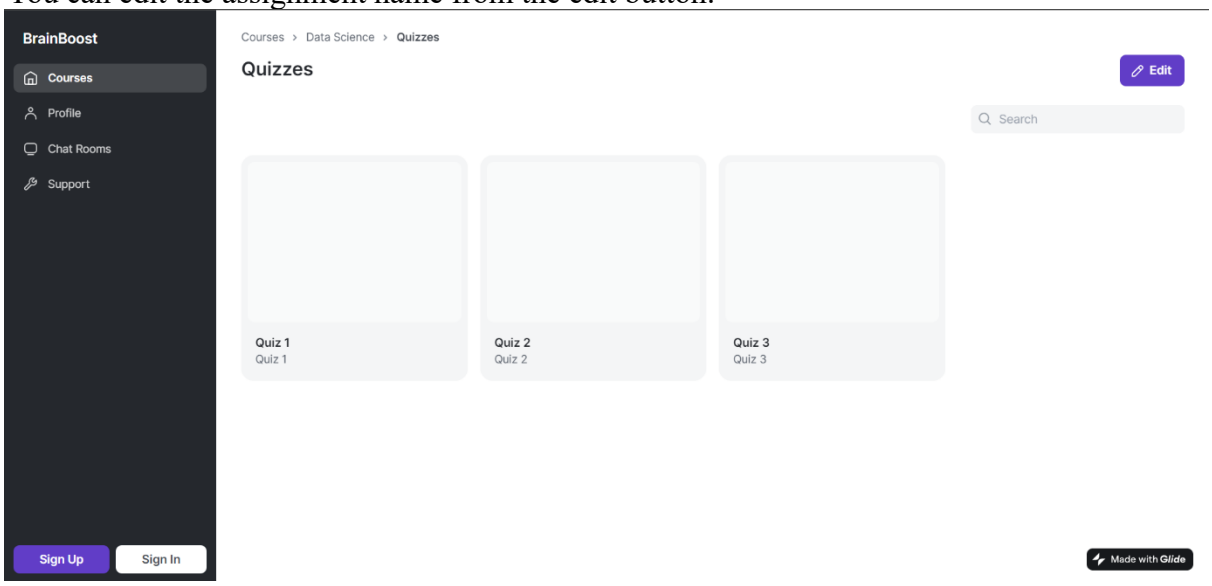
Quizzes - Materials



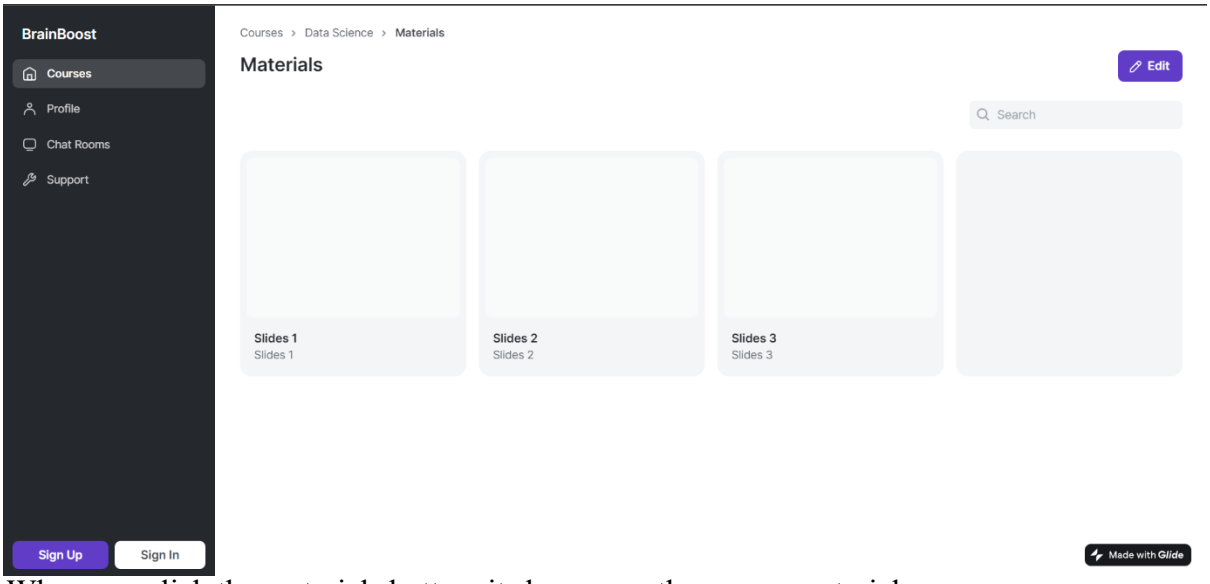
When you click the Assignments button it shows you due assignments.



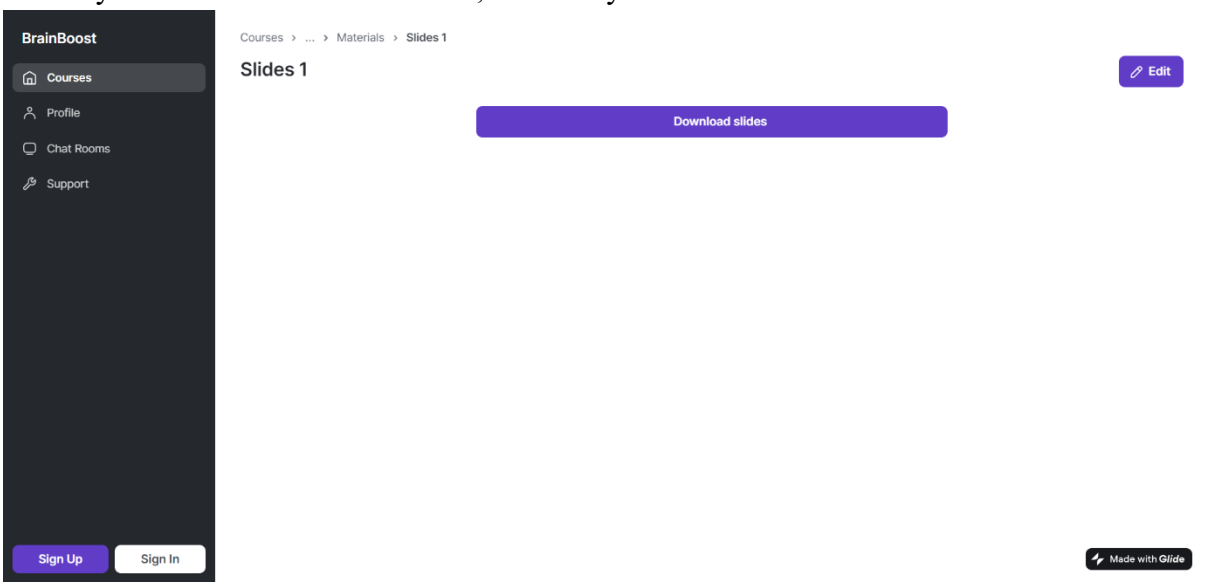
You can edit the assignment name from the edit button.



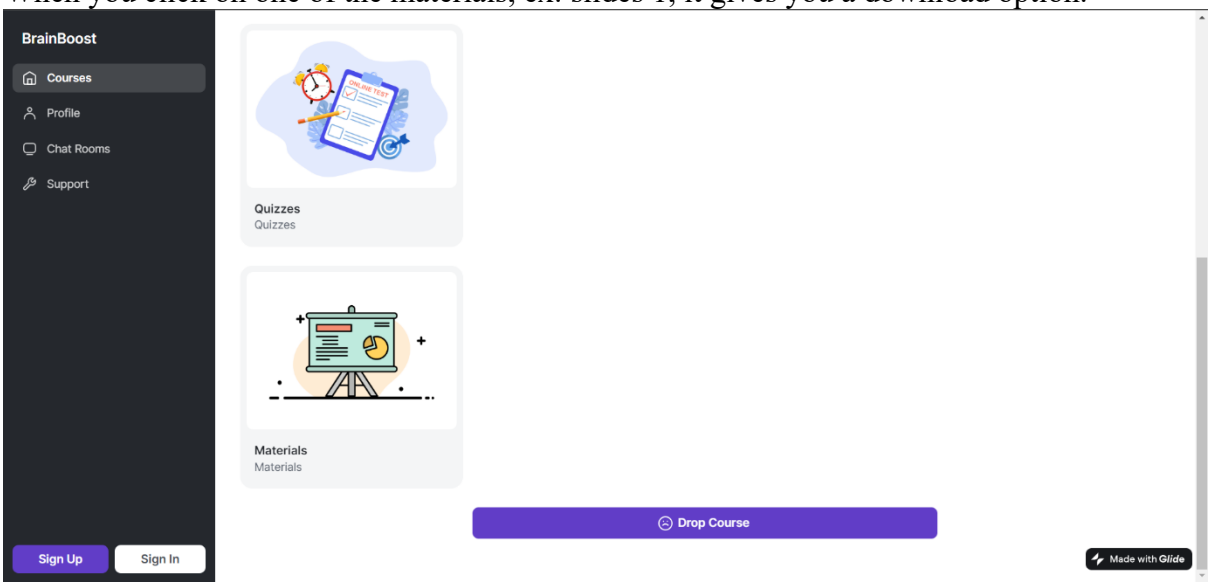
When you click the quizzes button it shows you the current quizzes.



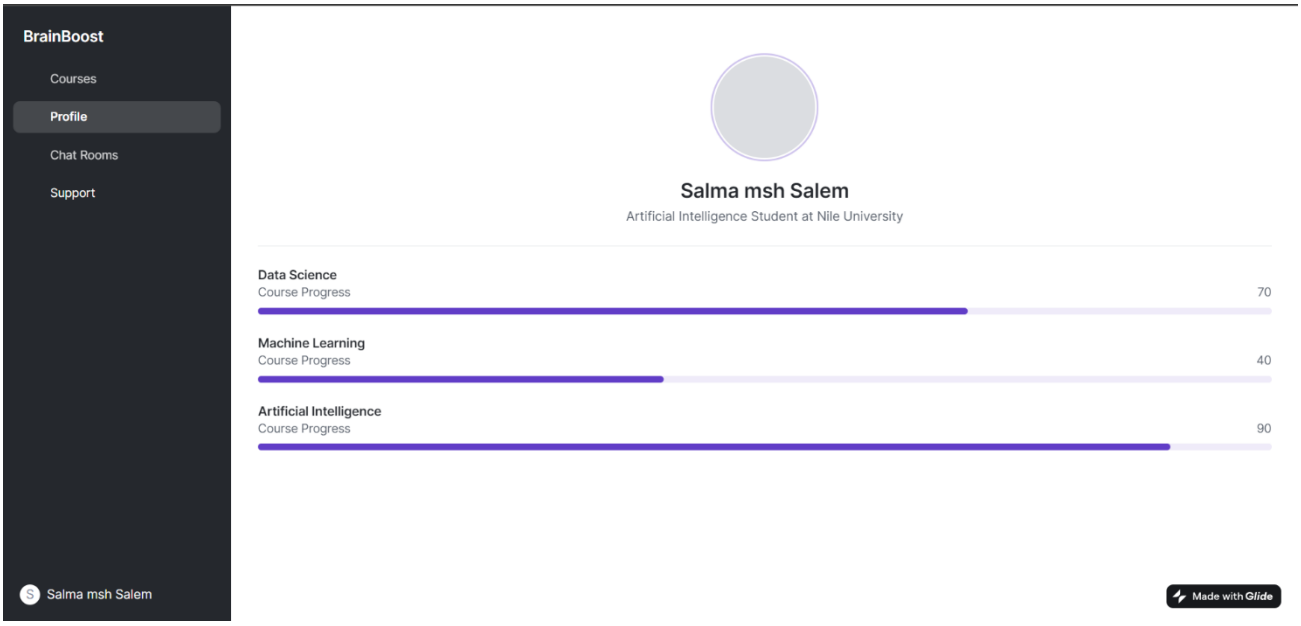
When you click the materials button, it shows you the course materials.



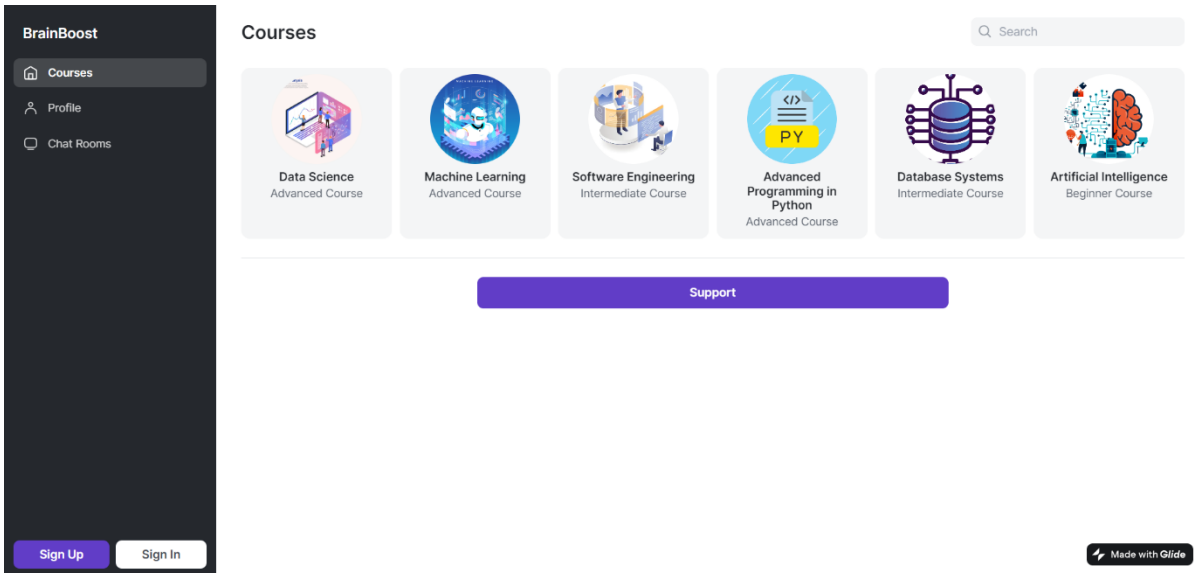
When you click on one of the materials, ex: slides 1, it gives you a download option.



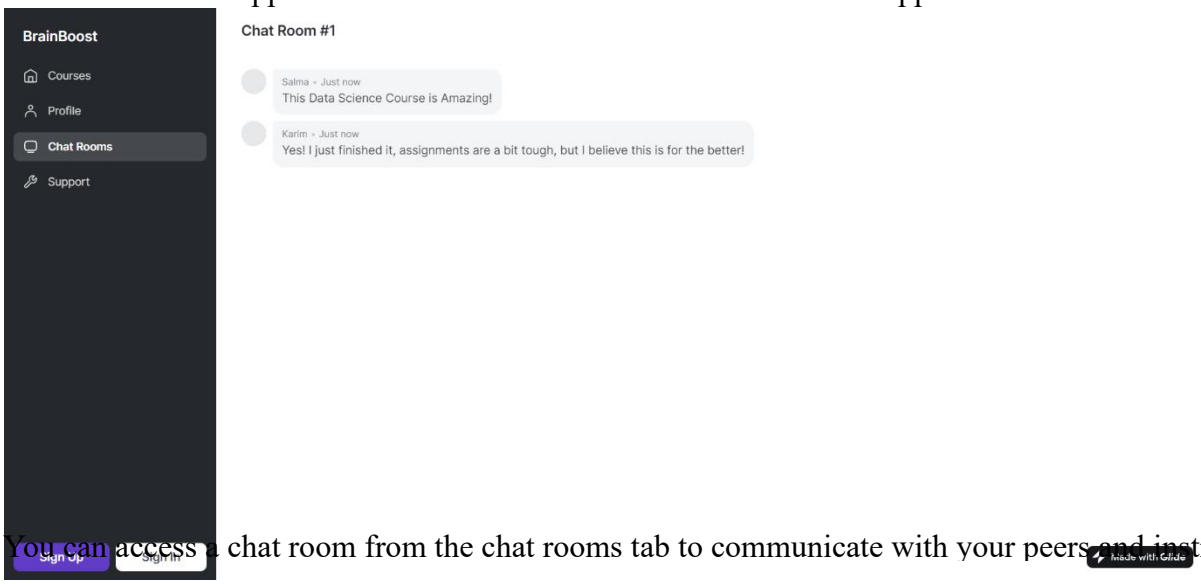
You can drop a course from the drop course button at the end of the page.



When you click on the profile button it shows your profile with the program you are enrolled in and the progress on all courses After signing in the sign in button on the bottom left of the page

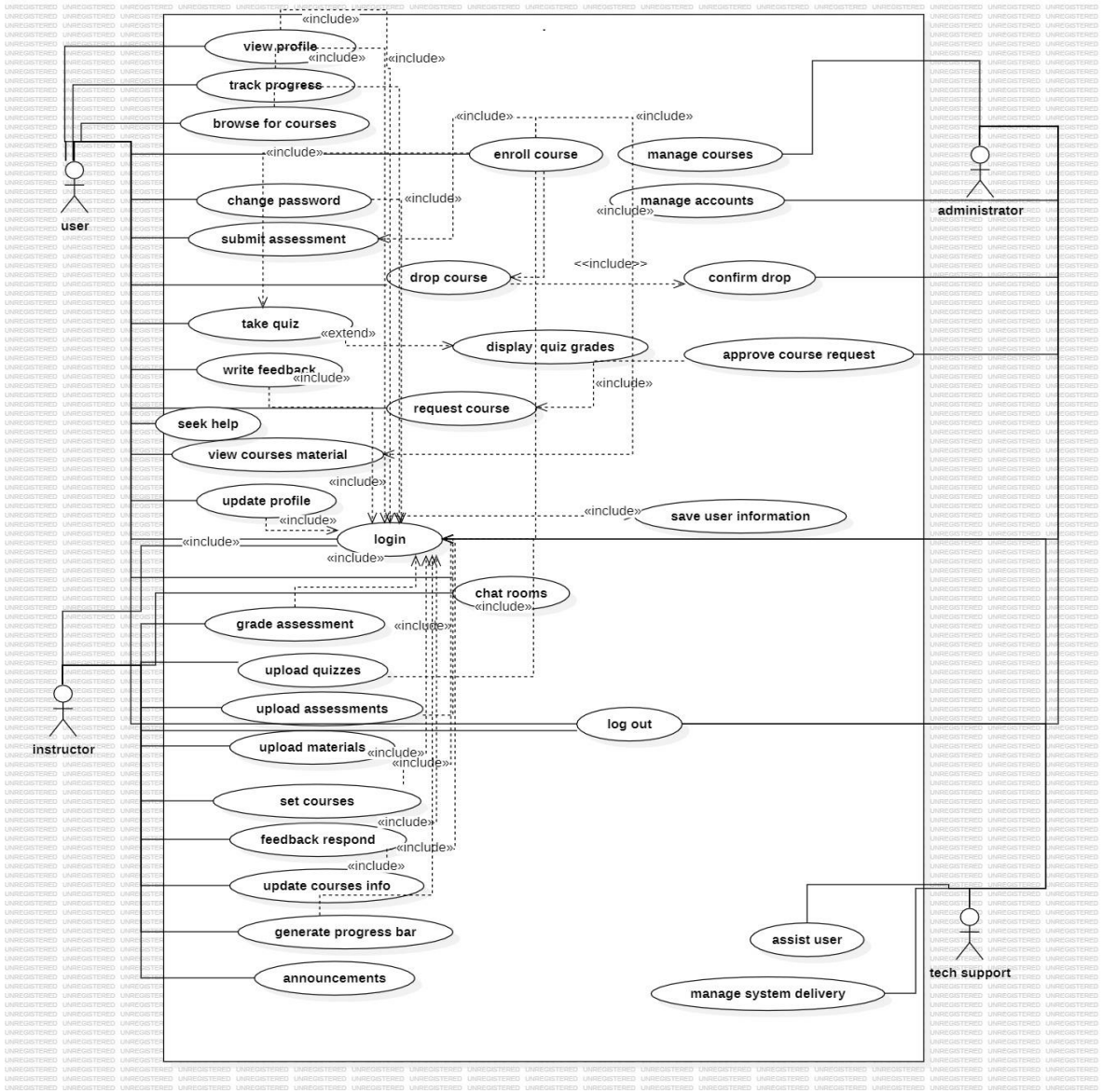


You can access a support button in the courses tab to seek technical support.



You can access a chat room from the chat rooms tab to communicate with your peers and instructors.

6. Use case Diagram



7. Use Case Scenarios

Use Case Name	◦ log in
Actors	◦ User (Student/Professor/Administrator)
Main Success Scenario	1. User enters valid credentials (username/email and password). 2. System validates the credentials. 3. If valid, the system grants access and logs the user in. 4. User gains access to their respective dashboard based on their role (Student, Professor, Administrator).
Alternate Scenarios	◦ If the user enters invalid credentials, the system prompts for correction. ◦ If the user exceeds a certain number of failed login attempts, the account may be temporarily locked.
Pre-Condition	◦ User has a registered account. ◦ User's account is not locked.
Post-Condition	◦ User is logged in and has access to their role-specific dashboard.

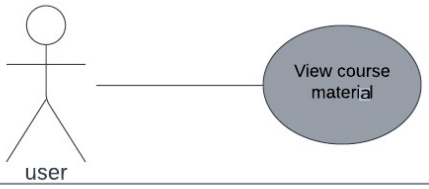
Use Case Name	◦ View Profile
Actors	◦ Student ◦ Professor ◦ Administrator
Main Success Scenario	1. User logs in. 2. User navigates to the profile section. 3. System displays the user's profile information, including name, contact details, and academic program (for students).
Alternate Scenarios	1. User logs in. 2. User navigates to the profile section. 3. System displays the user's profile information, including name, contact details, and academic program. 4. User decides to update their contact information. 5. User makes changes to the contact details (e.g., updates email address or phone number). 6. User saves the changes. 7. System validates and updates the user's contact information in the database. 8. System confirms the successful update. 9. User views the updated profile information.
Pre-Condition	◦ User is logged in
Post-Condition	◦ User views their profile information.

Use Case Name	◦ Track Progress
Actors	◦ Student
Main Success Scenario	1. Student logs in. 2. Student navigates to the progress tracking section. 3. System displays the student's overall course progress, completed modules, and grades.
Alternate Scenarios	1. Student logs in. 2. Student navigates to the progress tracking section. 3. System displays the student's overall course progress, completed modules, and grades. 4. Student attempts to access detailed feedback for an assignment, but there is no feedback available. 5. System displays a message indicating that detailed feedback for the selected assignment is not yet available. 6. Student acknowledges the message and returns to the progress tracking section.
Pre-Condition	◦ Student is logged in
Post-Condition	◦ Student views their progress information.

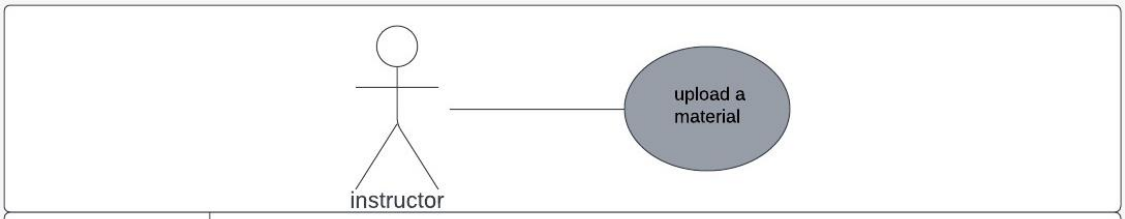
Usecase Name	Enroll in course
Actors	Student
Main success scenario	1- Student logs in. 2- Student navigates to the course catalog. 3- Student selects a desired course. 4- Student clicks on the "Enroll" button. 5- System checks for course availability and prerequisites. 6- If conditions are met, the student is successfully enrolled. 7- System updates the student's course list.
Exceptions	1- If the course is full or has prerequisites not met, enrollment fails. 2- If there are technical issues during enrollment, the system displays an error message.
Pre-condition	1- Student is logged in. 2- Course catalog is accessible.
Post-condition	**Student is enrolled in the selected course.**

Usecase Name	Submit Assessment
Actors	Student
Main success scenario	1- Student logs in. 2- Student navigates to the course with the assessment. 3- Student selects the assessment to be submitted. 4- Student uploads the completed assessment. 5- System confirms successful submission.
Exceptions	1- If the submission format is incorrect, the system prompts for a valid format. 2- If there are technical issues during submission, the system displays an error message.
Pre-condition	1- Student is logged in. 2- Assessment is available for submission.
Post-condition	**Assessment is successfully submitted and available for instructor review.**

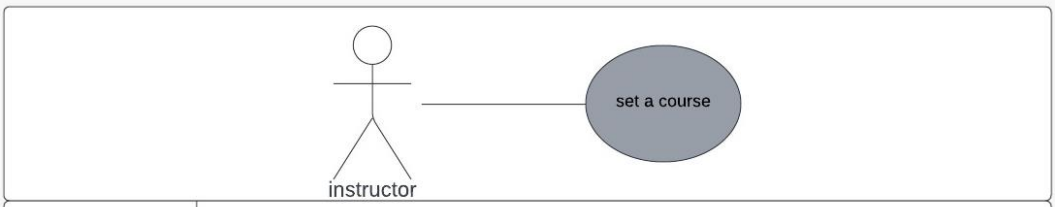
Usecase Name	Take Quiz
Actors	Student
Main success scenario	1- Student logs in. 2- Student navigates to the course with the quiz. 3- Student selects the quiz to be taken. 4- Student answers quiz questions. 5- Student submits their responses and it is made available for instructor review
Exceptions	1- If there are technical issues during the quiz, the system saves the progress and allows the student to resume later. 2- If the quiz submission fails, the system prompts for re-submission.
Pre-condition	1- Student is logged in. 2- Quiz is available for taking.
Post-condition	**Quiz is completed.**



Usecase Name	view course material
Actors	User
Main success scenario	1) the user opens the courses page 2) the user choose the desired course 3) the system displays the assignment , quizzes , and material as files 4) the user selects the material file 5) the system displays the materials of the course to the user
Alternate	3.1) the user selects the assignment file 3.1.1) the system displays all the assignments that should be submmited in the course 3.2) the user selects the quiz file 3.2.1) the system displays the quizzes that the user will have to take within the course
Pre-condition	The user should be logged in



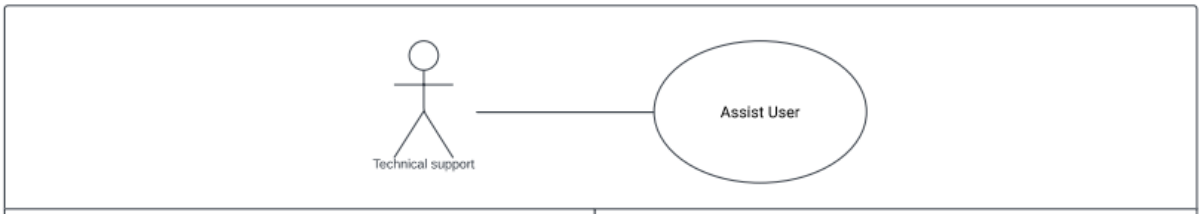
Usecase Name	upload a material
Actors	instructor
Main success scenario	1) after setting a course,the instructor navigates to the course in the courses section of the platform 2) The instructor clicks on add material button and uploads materials such as documents, presentations, videos, or other relevant content. 3) the instructor clicks on upload after finishing 4) the system will add the material to the material file in the course 5) the system will display a message stating that the material has been uploaded
Exception	3.1) the instructor clicks on upload with empty document
Action	the system will prompt the user to upload content first before pressing the upload button
pre-condition	instructor should be logged in
post-condition	the submitted content will be add do the course's material file



Usecase Name	set a course
Actors	instructor
Main success scenario	1) the instructor press on the add course button 2) The system will prompt the instructor to add information about the course like course name and course description 3) the instructor enters those information and then clicks on add course button 4) the system will add the course to the courses section 5) the system will display a message stating that the course has been added
Exception	3.1) the instructor clicks on add course with empty document
Action	the system will prompt the user to fill in information first before pressing the add course button
pre-condition	instructor should be logged in
post-condition	the course will be added to the course section

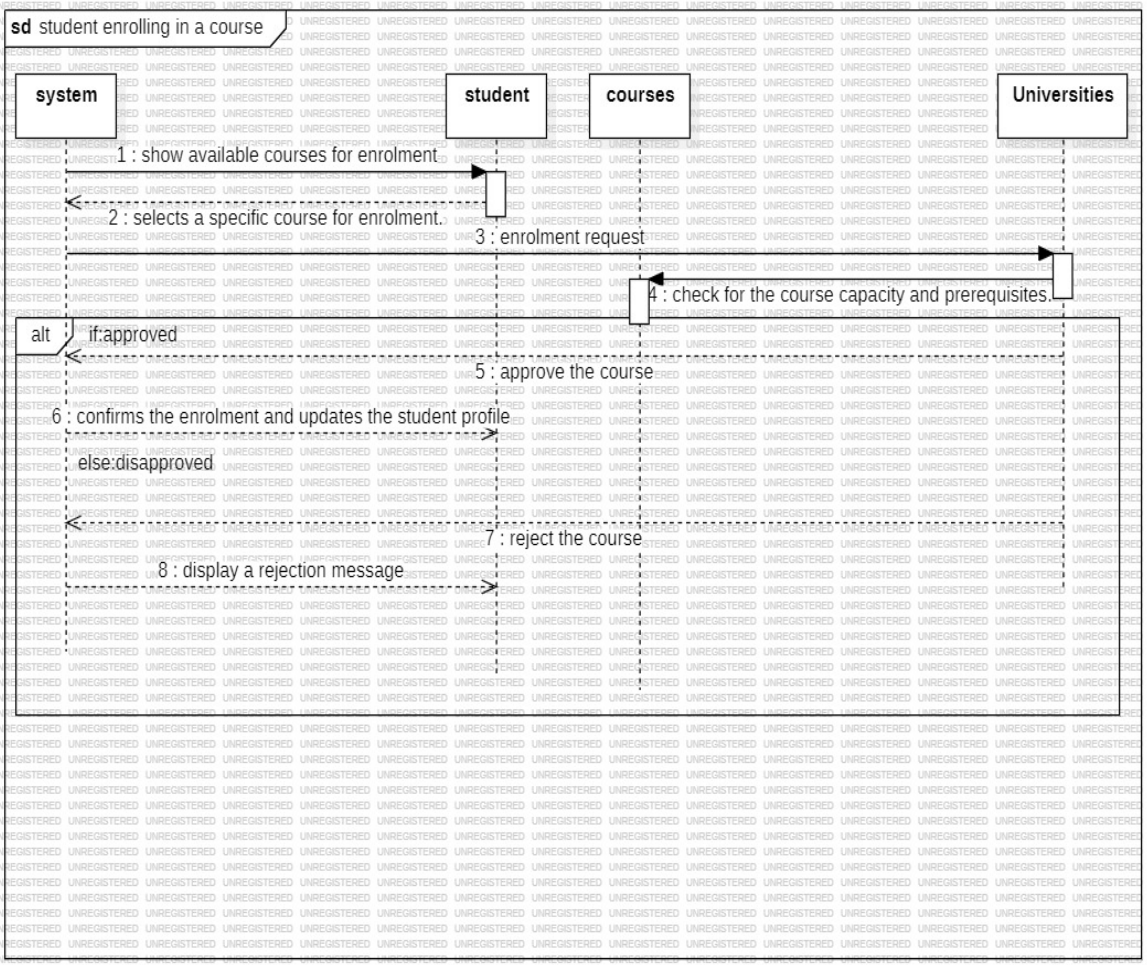
Usecase Name	Approve Course Request
Actors	Admin
Main success scenario	1. Admin logs in. 2. Admin navigates to the course approval section. 3. Admin reviews pending course requests from students. 4. Admin approves a course request for studrents. 5. System updates the course status.
Exceptions	1. If there are technical issues during the approval process, the system displays an error message. 2. If the course request is rejected, the system notifies the requester.
Pre-condition	1. Admin is logged in. 2. There are pending course requests.
Post-condition	**Course request is approved, and the course status is updated.**

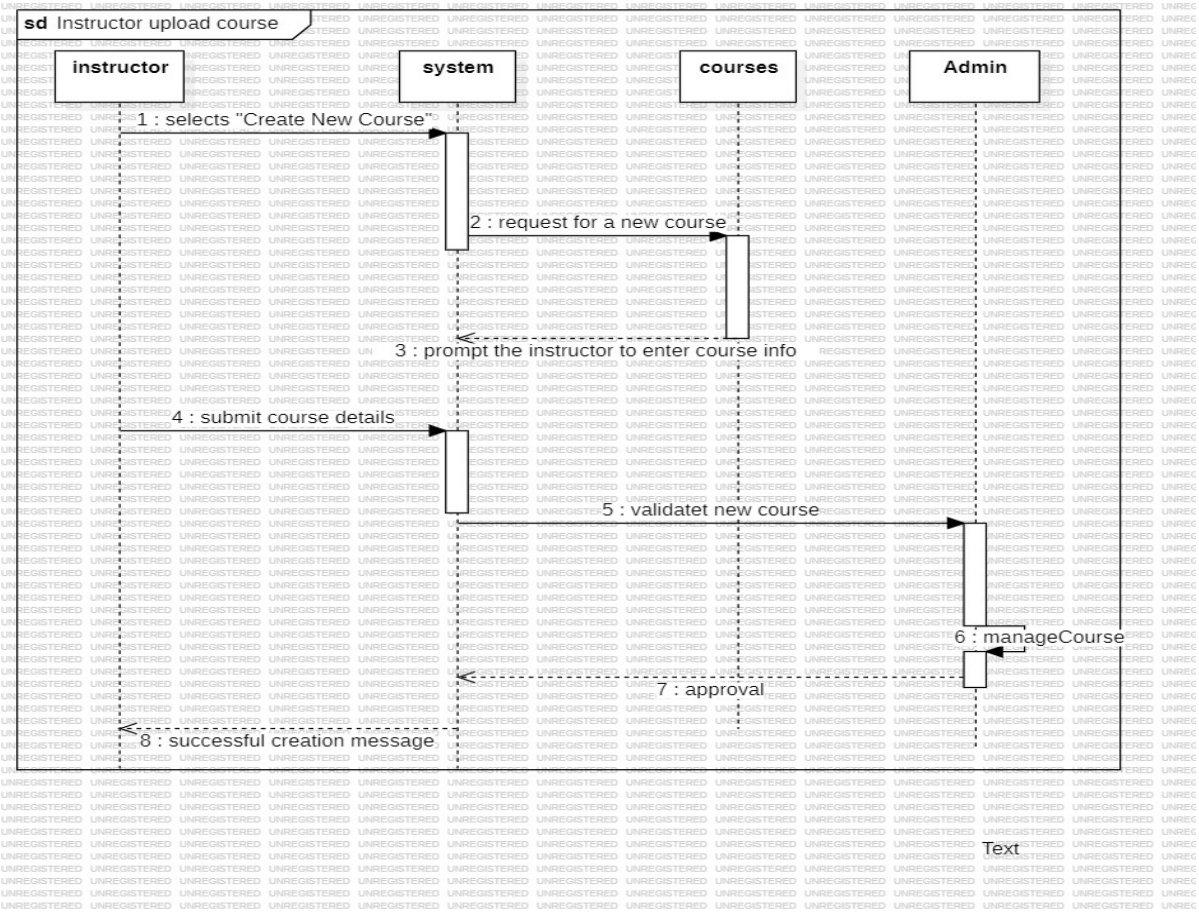
Usecase Name	Manage Courses
Actors	Admin
Main success scenario	1. Admin logs in. 2. Admin navigates to the course management section. 3. Admin views a list of existing courses added by the instructors. 4. Admin can edit, delete, validate, or update course details. 5. System updates course information accordingly.
Exceptions	1. If there are technical issues during course management, the system displays an error message. 2. If the course to be updated or deleted does not exist, the system notifies the admin.
Pre-condition	1. Admin is logged in. 2. There are existing courses in the system.
Post-condition	**Course information is edited, deleted, or updated as per the admin's actions.**



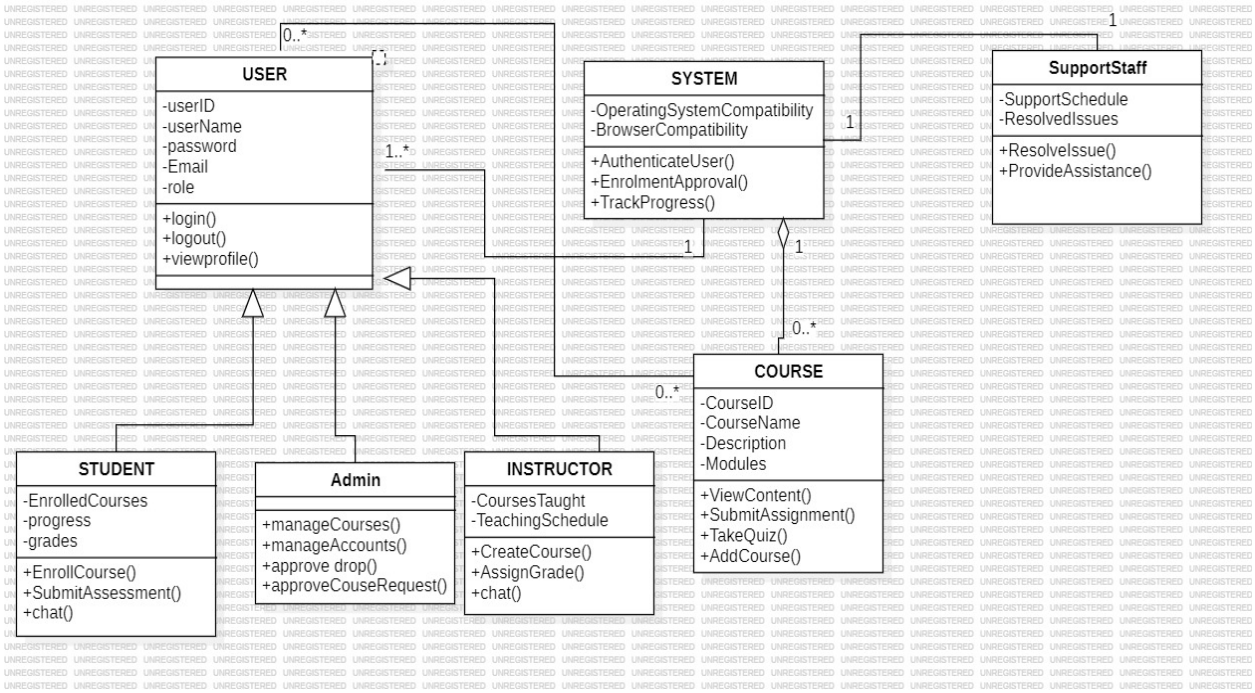
Usecase Name	Assist User
Actors	Technical support
Main success scenario	1. Technical support logs in. 2. User requests assistance through the help desk or support system. 3. Technical support acknowledges the request. 4. Technical support assists the user with the issue or query. 5. System logs the support interaction.
Exceptions	1. If there are technical issues during the support interaction, the system records the incident. 2. If the user's issue requires further escalation, the support staff escalates the ticket to higher support levels.
Pre-condition	1. Technical support is logged in. 2. User requests assistance.
Post-condition	**User receives assistance, and the support interaction is logged.**

8. Sequence Diagram




sd Instructor upload course
instructor
system
courses
Admin
1 : selects "Create New Course"
2 : request for a new course
3 : prompt the instructor to enter course info
4 : submit course details
5 : validatet new course
6 : manageCourse
7 : approval
8 : successful creation message
Text

9. Class Diagram



Test Case Template

Test Case ID: 001	**Test Designed by:** Rovan Ehab
Test Priority (Low/Medium/High): High	**Test Designed date:** 25/12/2023
Module Name: User Authentication	**Test Executed by:** Rovan Ehab
Test Title: Login Functionality Test	**Test Execution date:** 25/12/2023
Description: This test case verifies the functionality of the user login feature on the eLearning platform using valid email/username and password.	
Pre-conditions: User must have a valid account registered on the eLearning platform.	
Post-conditions: User is logged in and can access the eLearning platform's features and content**.**	

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Navigate to the E-Learning platform login page.		Upon successful login, the user should be redirected to the dashboard/homepage of the E-learning platform.	User Successfully logged in	Pass	
2	Enter the valid username and password in the respective fields.	Valid username: Salmamshhesham@gmail.com Valid password: test@123				
3	Click the "Login" button.					

Test Case ID: 002	**Test Designed by:** Mohamed Hafez
Test Priority (Low/Medium/High): High	**Test Designed date:** 25/12/2023
Module Name: Course Enrolment	**Test Executed by:** Mohamed Hafez
Test Title: Course Enrolment Functionality Test	**Test Execution date:** 25/12/2023
Description: This test case verifies the functionality of enrolling in a course on the eLearning platform.	
Pre-conditions: User must be logged into the eLearning platform and have access to the course enrolment feature.	
Post-conditions: User is enrolled in the course and can access the course materials and interact with the course content and instructor**.**	

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Navigate to the course or search for the desired course.	Course code or name	Upon successful enrolment, the user should be added to the course roster and gain access to the course materials and resources.	If the admin approves the register request, the user should get a successful register message.	Pass	
2	Click on the course to view the details. Ensure that the course is available for enrolment.					
3	Click the "Enroll" or "Join Course" button					

Test Case ID: 003	**Test Designed by:** Malak El Samman
Test Priority (Low/Medium/High): High	**Test Designed date:** 25/12/2023
Module Name: Course Management	**Test Executed by:** Malak El Samman
Test Title: Dropping Functionality Test	**Test Execution date:** 25/12/2023
Description: This test case verifies the functionality of dropping a course on the eLearning platform.	
Pre-conditions: User must be logged into the eLearning platform and enrolled in at least one course**.**	
Post-conditions: User is successfully dropped from the course and no longer has access to the course materials.	

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Navigate to the "My Courses" or "Enrolled Courses" section of the E-Learning platform.	Name or code of the course	Upon successful dropping of the course, the user should be unenrolled from the course and lose access to the course materials and resources.	If the admin approves the drop of the course, the user should get a successful drop message	Pass	
2	Locate the course from which the user wants to drop.					
3	Click on the option to drop the course or unregister from the course.					

Test Case ID: 004	**Test Designed by:** Salma Hesham
Test Priority (Low/Medium/High): Medium	**Test Designed date:** 25/12/2023
Module Name: E-learning platform-Course enrolment	**Test Executed by:** Salma Hesham
Test Title: E-learning platform course enrolment	**Test Execution date:** 25/12/2023
Description: User attempts to enrol in a course on an E-learning but encounters issues	
Pre-Condition: The user must be logged into the eLearning platform.	
Post-Condition: The user may need to seek support from the eLearning platform's helpdesk or technical support team if the issue persists.	

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Navigate to login page	Username and password Course: 'Software Engineering'	Successful completion of the enrolment process, the user should receive a pending message waiting for the admin to accept	After following the steps, the user encounters an error "unable to enrol in the course"	Fail	
2	Provide valid username and password.					
3	Search for the course using the platform's search functionality					
4	Click on the course and proceed to the enrolment page. Click on enrol					

Test Case ID: 005	**Test Designed by:** Khadija Nasser
Test Priority (Low/Medium/High): High	**Test Designed date:** 25/12/2023
Module Name: Course Content Access	**Test Executed by:** Khadija Nasser
Test Title: **Lecture Material Access Failure**	**Test Execution date:** 25/12/2023
Description: the test aims to identify potential failure in accessing and reading lecture materials within a specific course on the E- learning platform	
Pre-Condition: The user must be logged into the eLearning platform.	
Post-Condition: The user may need to seek support from the eLearning platform's helpdesk or technical support team if the issue persists.	

Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Navigate to login page	Enrolled Course: 'Software Engineering'	Failure to load or display the course material	Fail to access the material	Fail	
2	Provide valid username and password	Username and password				
3	Click on the first lecture within the course curriculum					
4	the lecture material fails to load or displayed for reading					

Link to repository: https://github.com/MYoussef885/BrainBoost

Phase 4 video link:

https://nileuniversity.sharepoint.com/:v:/s/salma/EbETlZtKdC1JttrAQBWCErYB4ZTJ7sfY3-7bukX03EnJbQ?e=c0KtAh&nav=eyJyZWZlcnJhbEluZm8iOnsicmVmZXJyYWxBcHAiOiJTdHJlYW1XZWJBcHAiLCJyZWZlcnJhbFZpZXciOiJTaGFyZURpYWxvZy1MaW5rIiwicmVmZXJyYWxBcHBQbGF0Zm9ybSI6IldlYiIsInJlZmVycmFsTW9kZSI6InZpZXcifX0%3D