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ACADEMIA IMPROVED LEARNING MANAGEMENT SYSTEM

Information Systems Graduation Project

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Abstract

In response to the growing need for better LMS platforms, our project's main mission is to create a user-friendly and highly customizable e-learning platform that benefits students, educators, and administrators alike. From students-side, the proposed e-learning system can serve as a one-stop repository for all their study materials and tools. This system is designed to make their learning journey as smooth as possible. From educators-side, the system can provide a seamless teaching environment, fostering communication and personalization. Finally, administrators are able to gain analytical insights for informed decision-making.

The proposed e-learning system covers core areas presented in other e-learning systems. Also, it ensures accessibility and usability for students, efficient course management for teachers, and streamlined data retrieval for administrators. Other complex features like AI assistance or video conferencing are out-of-scope due to time and resource constraints.

We are adopting an agile approach, allowing us to adapt as we go. This report includes chapters on market analysis, project details, system design, testing, results, and future possibilities. You can also find additional reports in the appendices for a deeper dive into our project journey.

Keywords: Learning Management System, LMS, Course Management, XAPI.

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List of Acronyms

Acronym	Stands for
AI	Artificial Intelligence
API	Application Programming Interface
Apps	Applications
Ar	Arabic
AWS	Amazon Web Services
BPM	Business Process Model
BPMN	Business Process Model and Notation
COVID-19	Coronavirus disease of 2019
E-Learning	Electronic Learning
En	English
ERD	Entity Relationship Diagram
JSON	JavaScript Object Notation
LMS	Learning Management System
MVC	Model View Controller
PDF	portable document format
SCORM	Sharable Content Object Reference Model
SWOT	Strengths, Weaknesses, Opportunities, Threats
UI	User Interface
UX	User Experience
WCAG	Web Consortium Accessibility Guidelines
XAPI	Experience API

Chapter 1: Introduction of the Project and its Vision.

1.1 Background and Motivation

Hybrid learning has become increasingly important since the COVID-19 pandemic began in 2020. To meet this new demand in the market, numerous platforms and applications have emerged to cater to educational institutions, individual trainers, and software companies that create platforms for specific fields of education. Each platform has its unique advantages and disadvantages, but most suffer from issues such as low usability, difficult maintenance, and a focus on specific types of education. Our team recognizes the need for a better platform and has decided to develop one to meet the needs of learners and educators.

1.2 Problem Statement

The present problem is the lack of LMS (Learning Management System) and proper LMS usage in the Egyptian market which hinders the progress and user experience of many learners which opens the way for the creation of new LMSs catered to the Egyptian/Arabic population.

1.3 Objectives

Our team's objective and vision are to create an E-learning (Electronic Learning) platform that provides a perfect learning environment for students, teaching staff, and management. We aim to create a platform that is easy to use, customizable and provides all the necessary tools for learners and educators to succeed.

- For students, we envision a platform that acts as their personal repository containing all their studying material and all the tools they need to succeed in their specific field of study.
- For educators, we envision a platform that provides a seamless environment for communication, monitoring, connecting with students, and delivering personalized education. Our platform will allow them to create their personalized classroom with every tool they need to provide the best possible education for their students.
- For management, we aim to provide an analytical platform that enables them to review and evaluate their teaching staff and courses, providing a data-driven approach to decision-making.

1.4 Project Scope and Limitations

The Current agreed scope is an LMS that covers students' accessibility to content and their user experience, covers teachers' needs for easy-to-modify and manage live courses, and lastly covers the administration's needs for an easy-to-use interface to pull relevant data and analyse it.

All other subjects that do not directly fall under those 3 categories are outside the scope of starting the project, for example, customized learning paths for each student, AI (Artificial Intelligence) assistance, and video conferencing.

Some limitations of this project are its system requirements as LMSs need optimized services to allow thousands of students to connect at the same time, thus some hardware limitations may be specified depending on the chosen architecture.

1.5 Project Methodology

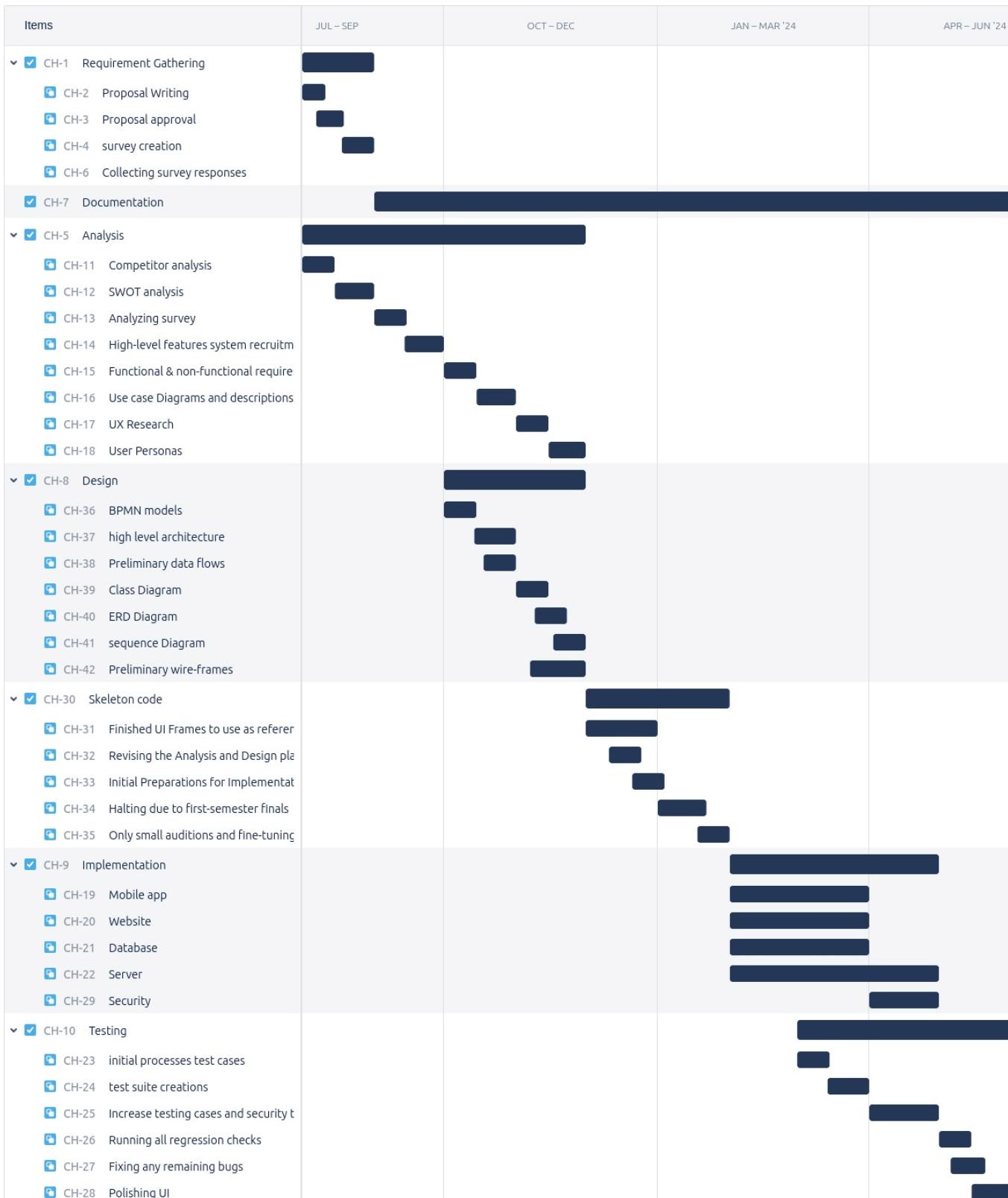
The chosen Methodology will be agile. Though we have a clear end goal, we still require more research and testing to realize the actual structure and architecture which means that some features may be added and removed as necessary, so the Agile methodology will allow us more flexibility to review and change goals, scope and design as necessarily, its greatest benefit will be the teams' ability to cross work on different tasks to ensure continuous improvement and progress towards the end goal.

1.6 Project Report Outline

For this report we followed the report guidelines. Chapter 2 is concerned with market analysis and literature survey. Chapter 3 is concerned with the project analysis where we conducted a survey to output the main features and their prospective functional and non-functional requirements. Chapter 4 is concerned with the design and the architecture of the system, detailing class diagrams, ERDs (Entity Relation Diagram), BPMs (business Process Model), etc. Chapter 5 is concerned with testing and evaluating the system and its features. Chapter 6 is the last chapter focusing on the results of the project and possible future works. Lastly, the Appendix which contains detailed copies of the reports used during this project development or refers to the appendix Folder which contains the actual reports.

1.7 Project Timeline

Table 1 Project Timeline



1.8 Workload Distribution

Marwan:

- Coordination of Work.
- Documentation writing and maintenance.
- System Features and Requirements.
- System Specification.
- Database System.
- Backend Servers.
- Testing.

Abdelrhman:

- Survey Creation and Its Analysis.
- Documentation Editing.
- System Features and Requirements.
- UX research.
- UI Frames.
- GP Presentation.

Ahmed:

- Use Case Descriptions.
- BPMN Diagrams.
- Class and ERD Diagrams.
- Mobile Application.
- Backend Server

David:

- Functional and non-functional requirements,
- Use Case Descriptions.
- BPMN Diagrams.
- Sequence Diagrams.
- Mobile Application.

Mohamed:

- Business plan.
- Use Case Diagrams.
- Front-end Application.
- Testing.

Chapter 2: Market and Literature Survey

2.1 Competitors

In this section, we will discuss the advantages and disadvantages of some of the most popular e-learning platforms currently available. For the full competitors' Analysis please refer to the index. These platforms include:

- **Blackboard**

Blackboard is a very popular e-learning platform that offers a variety of features, including communication tools, course management, and content management. Its advantages include its flexibility and its ability to integrate with various other educational tools. It is extremely versatile due to its many features like video streaming and a mobile app available too. However, its disadvantages include its complexity and the steep learning curve required to use it effectively due to how complicated the interface may be too inexperienced students alongside connection issues that may happen in areas with poor internet connections

- **Thinqi**

Thinqi is a cloud-based e-learning platform that offers features such as course creation, collaboration tools, and learner management. Its advantages include its user-friendly interface and its ability to be customized to fit the needs of specific users. However, its disadvantages include its lack of advanced features and its limited reporting capabilities.

- **Google Classroom**

Google Classroom is a free e-learning platform that offers features such as course management, assignment creation, and student progress tracking. Its advantages include its ease of use and its integration with other Google tools. However, its disadvantages include its limited customisation options and its lack of advanced features though those disadvantages can be seen as targeting a specific customer profile who needs a simple and lightweight educational platform.

- **Ain Shams**

Ain Shams is a popular e-learning platform used by Ain shams university. Its advantages include its ease of use and its flexibility. However, its disadvantages include its limited customisation options and its lack of advanced features.

2.2 Competitor Analysis

Table 2 Competitor Analysis

	Blackboard	Moodle	Acadox	G-Classroom
Product	A traditional LMS caters to institutional needs with customization, analytics, and communication features.	An open-source, community-driven LMS prioritizes customization, collaboration, self-directed learning, and diverse support.	Acadox simplifies education with course management, attendance tracking, and document sharing for institutions.	Google Classroom, part of G Suite, offers an easy-to-use platform for efficient, collaborative class management with simplicity at its core.
Popularity	High user adoption	Widely used	Moderate user adoption	Widely used
Main Features	<ul style="list-style-type: none"> - Course management and delivery - Collaboration and communication tools - Assessment and assignment management - Mobile app for on-the-go access 	<ul style="list-style-type: none"> - Course management and delivery - Collaboration and communication tools - Grading and feedback management - Mobile app for seamless access 	<ul style="list-style-type: none"> - Course management and administrative tasks digitization - Easy access to course materials and resources - Efficient attendance tracking and management 	<ul style="list-style-type: none"> - Course creation, management, and delivery - Real-time collaboration and communication - Mobile app for easy access and engagement
Unique Features	<ul style="list-style-type: none"> - Extensive customization and integrations - Collaborative learning features 	<ul style="list-style-type: none"> - Open-source nature allows for customization and community-driven development - Integration with third-party plugins and tools 	<ul style="list-style-type: none"> - Integration with other educational tools and systems - Automated document management 	<ul style="list-style-type: none"> - Integration with Google Drive, Docs, and other G Suite services - Integration with Google Forms for assessments and quizzes

	Blackboard	Moodle	Acadox	G-Classroom
Strengths	<ul style="list-style-type: none"> - Established reputation as a traditional LMS - Robust analytics and reporting capabilities - Experience in serving diverse educational institutions 	<ul style="list-style-type: none"> - Supportive of diverse learning environments - High user satisfaction ratings 	<ul style="list-style-type: none"> - Integration with other educational tools and systems - Automated document management 	<ul style="list-style-type: none"> - Seamless integration with G Suite and popular Google products - User-friendly interface and ease of use - High user satisfaction ratings
Weakness	<ul style="list-style-type: none"> - User interface may be less intuitive for some users - May require additional training for administrators and instructors - Average rating indicates room for improvement 	<ul style="list-style-type: none"> - User interface may be less intuitive for some users - Customization may require technical expertise 	<ul style="list-style-type: none"> - Limited awareness and market penetration compared to competitors - Average rating indicates room for improvement 	<ul style="list-style-type: none"> - Limited customization options compared to other competitors - Reliance on Google ecosystem may limit integration with other tools
Users Like	Customization options	Flexibility and customization	Streamlined administrative tasks	Integration with Google services and ease of use
Users Dislike	User interface can be complex	Technical expertise required for customization	Limited awareness and user base	Limited customization options

2.3 SWOT Analysis

▪ Strengths

- User-centric design, with a focus on providing an intuitive and easy-to-use platform for learners, educators, and management.
- Advanced analytics and reporting capabilities that enable data-driven decision-making.
- Support for mobile learning and accessibility features, ensuring that all learners have equal access to the content.
- Personalized learning paths and adaptive assessments, providing tailored learning experiences for individual student needs and abilities.

▪ Weaknesses

- Lack of brand recognition and reputation, which may make it challenging to attract users in a crowded market.
- The development of advanced features and analytics capabilities may require a significant investment of resources.
- The platform may require ongoing maintenance and updates to ensure that it remains relevant and up to date.

▪ Opportunities

- The growing demand for e-learning platforms due to the COVID-19 pandemic and the increasing importance of online learning.
- The potential to partner with educational institutions and organizations to promote the platform and attract users.
- The potential to expand the platform to include additional features or support for other types of education.

▪ Threats

- Intense competition from established e-learning platforms that have a strong brand and reputation.
- The risk of security breaches or data loss, which could undermine user confidence in the platform.
- Regulatory and compliance issues that may arise when handling sensitive student data.

2.4 Features

Our team aims to create a platform that provides a better user experience and better maintenance and monitoring for educators. We will focus on addressing the shortcomings of other mainstream platforms. A detailed version based on the additional information gained from the survey can be found in Project Preliminary Requirements

■ The key features

- Acting as a material repository for students
- Conducting quizzes and tracking grades
- Providing easy-to-use tools for educators to communicate with students and track their progress.
- Advanced analytics and reporting capabilities that provide insight into student performance, course effectiveness, and learning outcomes.
- Support for mobile learning, allowing students to access content and interact with their instructors on their smartphones and tablets.
- Accessibility features, such as closed captioning, text-to-speech, and other assistive technologies to ensure that all learners have equal access to the content.
- Personalized learning paths and adaptive assessments that provide tailored learning experiences based on individual student needs and abilities.

■ Leading principals

● User-centric design

Our team is committed to creating a platform that is intuitive, easy to use, and meets the needs of our users. We will prioritize user feedback throughout the development process to ensure that our platform is tailored to the needs of modern learners and educators.

● Analytics and reporting

Our platform will provide advanced analytics and reporting capabilities that provide insight into student performance, course effectiveness, and learning outcomes. This will enable educators and management to make data-driven decisions and continuously improve the learning experience.

Chapter 3: Analysis

3.1 Data Gathering

Our vision with this project is to create an LMS that provides an easy and encompassing environment for students, making them not need that many external tools, for teachers to ease their experience and allows them to provide the most value for students with the least effort and for administrators to easily keep track of the courses, performances, and efficiency of their staff. Thus, to help direct our project and provide more concrete steps towards those goals, we conducted 2 surveys with the aim of asking students and teachers about their experiences with LMS, their preferred one, the issues they face, and the features they wish to see.

With that in mind, given how we want both the needs of less-experienced stakeholders like our students and extremely experienced stakeholders like teaching staff, we opted to create 2 different surveys. Though both have the same goal, the student version is more quantitative with some supplementary qualitative questions seeking to collect as much data as possible with most questions being Multiple Option Questions and 5-step Likert scale questions starting from 1 (Strongly disagree) till 5 (Strongly Agree). For Example: “on a scale from 1 to 5. Please rate this” which allows us to analyse their responses and weight them to notice any inconsistencies or repeated sentiments. For the teachers, we tried to focus on qualitative questions given they are both stakeholders we are less familiar with, given we are students ourselves, and due to their years of experience they would have better awareness and expertise dealing with LMS.

3.2 Survey Structure

For ease of use, we chose a commonly used form creation tool which is Google Forms and started creating our questionnaire using scale questions, multiple choices, and open-ended questions. Due to having a good number of foreign students at Cairo University, we decided to include an Arabic or English choice for the students to make sure it can be accessible and easy for students who are still learning Arabic. For a full detailed list of all the questions please refer to the appendix.

3.3 Analysis Steps

To process the data, we received and present it into a proper summary report we used an Excel sheet as it is the format Google form outputs. We got the collected data and proceeded to rearrange it into the staging sheet. We used this step to format the responses in a clearer way and prepare for the analysis stage. For the sake of summarisation, we opted to categorize the responses and analyse the responses for the top 3 LMSs which most people have experience using because it implies that those 3 will also have better-educated responses and suggestions.

As pointed out before the student survey is mostly quantitative questions so analysis of their responses took the form of sorting the numerical data for questions with multiple options getting means for scale questions and then visualizing them using charts to show how each option compares to the others and point out clear user preferences and/or characteristics.

For the qualitative questions, we decided to categorize them based on important elements to the users like speed, ease of use, functionality, etc. And picked the most recurring requests in our report for each major LMS.

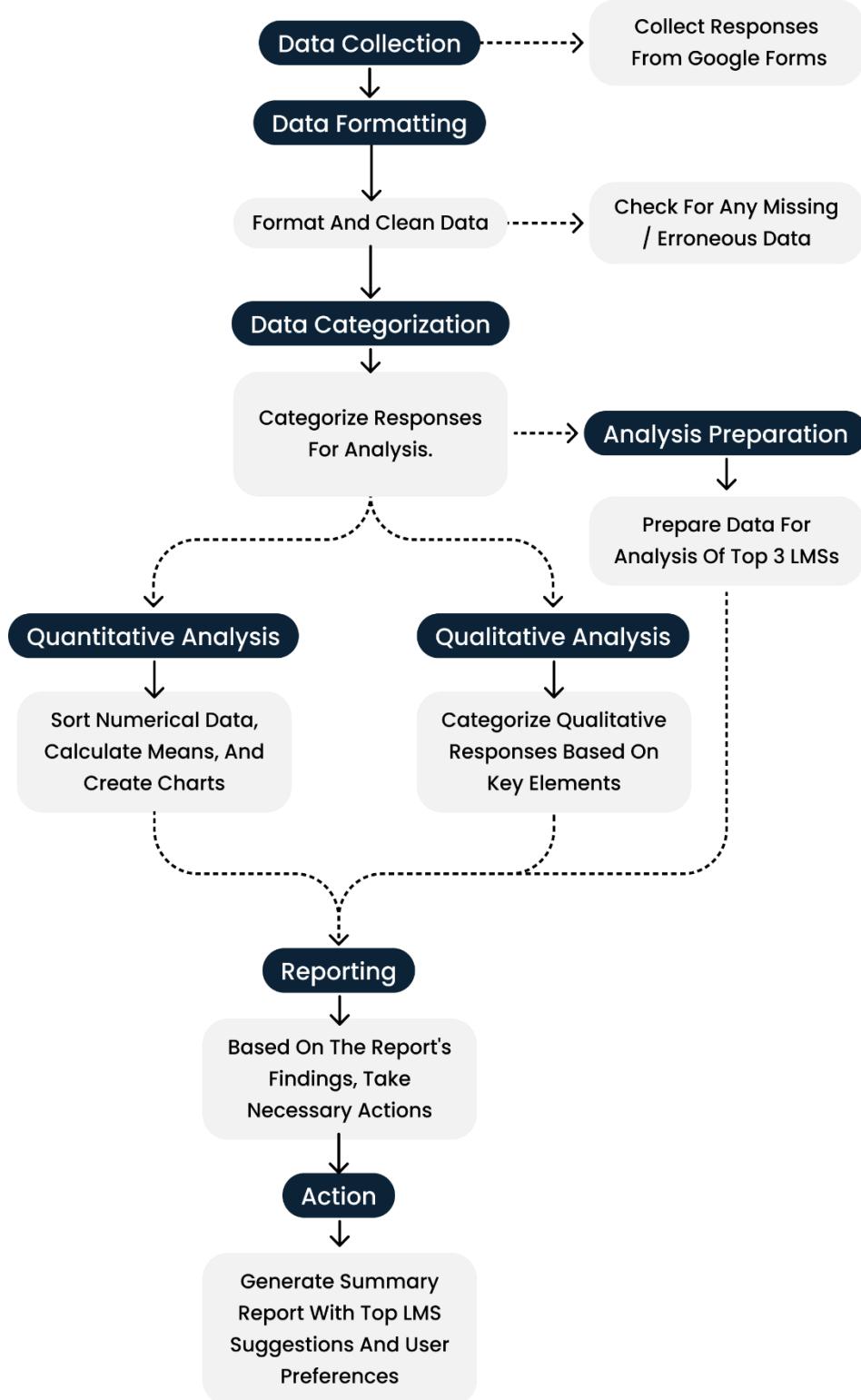


Figure 1 Survey Analysis Steps

3.4 Survey Results

Our survey collected 98 responses from students and all extra details can be found in the full report in the appendix. The students were from various faculties though most of them were from Cairo University and in engineering or computer science faculties. Most of them are in their fourth year, in computer science and engineering Faculties, and have used an LMS before(95.6%) which is reflected in Figure 19 Survey Faculty Chart, Figure 18 Survey University Chart, and Figure 17 Survey University Year Chart

Though the sample size is small, some helpful insights can be gained from the quantitative results alone, as 56.3% said they use both mobile and Web apps and 6.3% rely fully on the LMS mobile app which points out the importance of having an accessible and easy to use mobile application.

The answers to question 8 on the students' survey (how often do you use the LMS) are a bit inconclusive as 40.5% of the respondents said they use it daily and 36.7% said they rarely use it which points out the variance of how students approach using an LMS and using external tools or other sources to study like YouTube.

But most important is the usage data on which LMS the students preferred here Figure 22 Survey Preferred LMS Chart. Which shows that Blackboard, Google Classroom, and Microsoft Teams are the top three choices for LMS.

On the top is the chart representing the percentages of which LMS the students preferred (Question 7) while below are the cumulative numbers of which LMS the students ever used (Question 6)

It is also crucial to point out a few major points that are derived from this data.

- Firstly, even though Microsoft Teams is not an LMS in the strictest terms, its features of organizing work, dashboards, sharing material and video streaming made it a very useful tool for students and teachers alike.
- Secondly, an interesting note to point out is that 100% of the respondents who chose Blackboard as their preferred LMS were all from Cairo University, adding the fact that most respondents are from Cairo University suggests that the current features of Blackboard are liked enough to warrant a second place even when no other student from another university chose Blackboard.
- Thirdly, this also warrants a deeper look into Google Classroom, as though compared to Blackboard it lacks a lot of the features that allow Blackboard to be an internationally recognized LMS, it is still preferred by many students.

- Lastly, following up on the previous point, even though we added other internationally recognized LMSs like Canvas and Moodle, barely anyone preferred them or even used them. This can be due to our limited respondents, but it can also imply a lack of experiments with those LMS in higher education in Egypt.

Figure 21 Survey LMS Cumulative Usage Chart

For the teachers' survey sadly we only received 6 responses which is an inadequate number to do a proper data-driven analysis. However, given how most of the questions were qualitative, we can simply screen the responses manually instead of doing deep analysis and categorization.

By going through the responses some common points were made by the teaching staff on how important Ease of use, reusability, of course, issues caused by low bandwidth, sharing and organizing files easier, making quizzes and lastly video conferencing.

3.5 Project Preliminary Requirements

Per the previous Analysis results, we created a list of requirements/features that should be apparent and focused upon in the project design phases as they can be considered our initial goals and main features till further improvements and adaptations happen. For a full detailed list with explanations for each item please refer to the appendix. The list is split into 3 categories based on priority/importance/Ease of implementation, Those 3 categories.

- Must Have Features: Features that are crucial to the LMS and should not pose significant trouble implementing.
- Should Have Features: Features that include quality-of-life improvements or minor additions to the system as a whole and their implementation may need consideration in the design phase or are easy to implement.
- Nice To Have Features: Features that can benefit stakeholders but are not crucial and their implementation may be extremely complicated and/or require extreme hardware capabilities.

■ Must Have Features:

- User Dashboard
- Tracking Course Progress
- Cloud Storage
- Multi-language support ability
- Communication Features
- User-Friendly and easy to navigate Interface.
- Accessible interface
- Hot Keys/Quick Access to Tools
- Labels and Categorisation/Platform Organization
- Self-Enrolment with invitations or codes
- Create Courses
- Add Material/Reuse material from other courses.
- Tasks/Assignments
- Writing/Post Editor page
- Quiz assignments
- Mobile App Availability
- Fast Performance
- Blog per Course

■ Should Have Features:

- Dark Mode Option
- YouTube video Integration
- SCROM/Xapi/Inter-operability Conformance
- Enhanced Search Tools
- Customizable Settings
- Direct File Downloads
- Tutorials
- Advanced (reply to and set reminders, etc) Notifications.
- File Management System
- Integrated External Resources
- Assessment Tools (Scoring) /Teacher Dashboard
- Feedback Mechanisms
- In-depth Analytics

■ Nice to Have Features:

- Live Meeting Functionality
- Personalized Learning Paths
- Collaborative Features/ Student teams and shared scores
- Auto-grading (Text recognition)

■ Functional requirements:**1. User Authentication**

- User initiates registration by providing details and system validates.
- User logs in using credentials or third-party accounts.
- User resets the password if forgotten.

2. User Actions

- Students enrolled in courses, access content, and track progress.
- Teacher creates/updates/reviews/deletes assignments, materials, quizzes, and courses.

3. Platform Features

- User uploads, downloads, and manages learning materials.
- Users set preferences for language (AR, En), accessibility (screen light, colour blind palette), and appearance (Font size, font format, dark/light modes).

4. Course Management

- Admin generates enrolment codes and controls courses.
- Student self-enrols using provided codes.

5. User Settings

- User updates profile, manages preferences, and data.

6. Feedback and Assessment

- Users provide feedback, ratings, and engage in assessments.

7. Mobile App and Accessibility

- Users access the platform via mobile app with optimized design.
- User utilizes accessibility features.

8. Admin Functions

- Admin manages users, courses, platform, and configurations.

9. Reports and Analytics

- Admin reviews reports and analytics for decision-making.

10. User Support and Maintenance

- Admin supports users and oversees platform maintenance.

■ Non-functional:**Usability:**

- **Accessibility:** Ensure compliance with accessibility standards (e.g., Web Consortium Accessibility Guidelines WCAG) to make the LMS usable for individuals with disabilities.
- **User Experience (UX):** Define guidelines for the overall user experience, such as intuitive navigation, consistent layouts, and responsive design.

Performance: To ensure speed and Efficiency, the actual system will be built with low-resource servers in mind and the front-end will be made with platform-specific technology to ensure efficiency. By relying on scalable hosting services like Amazon Web Services (AWS), or ORACLE to scale for more customers. and use a microservices architecture to enable scalability, near 100% uptime, and easy integration of new features.

Reliability: Reliability is concerned with ensuring our services go down as little as possible, this can be done by ensuring our code robustness and how it deals with errors and using high-quality services to manage the servers. So, it can handle a few thousand students connecting concurrently to the servers, a similar size to an Egyptian University student count per faculty, so around 2000 concurrent requests.

3.6 User Research

3.6.1 Background

The E-Learning Platform project is a critical educational tool that supports students, teaching staff, and student management professionals. Its success is dependent on its ability to meet the evolving needs and preferences of its users. To ensure its effectiveness, a user-centred approach was adopted to enhance the user experience.

3.6.2 Objectives

The primary objectives of this user-centred approach were:

- Identify challenges and pain points experienced by users.
- Determine essential features and tools that users require for an optimal experience.
- Gather user preferences and suggestions for platform improvement.

3.6.3 Research Methods

To achieve the objectives, a mixed-methods approach was employed, combining qualitative user interviews and quantitative online surveys. This allowed for a comprehensive understanding of user perspectives.

3.6.4 Participant Recruitment

Participants were recruited through various channels, including online platforms, educational institutions, and social media groups. A diverse group of users was involved, including students, teaching staff, and student management professionals.

3.6.5 Data Collection

Data was collected through:

- **Semi-structured Interviews:** Conducted remotely via video conferencing, these interviews provided in-depth insights into user experiences.
- **Online Surveys:** Structured questionnaires in the form of online surveys gathered quantitative data from a larger user base.

3.6.6 Student Users Profiles

- Undergraduate and graduate students
- Varying levels of technological proficiency
- Seeking efficient access to course materials and effective communication tools

3.6.7 Teaching Staff Users Profiles

- Professors and educators with extensive teaching experience
- Adapting to online teaching methods
- Focused on content creation, interaction, and analytics.

3.6.8 Student Management Users Profiles

- Student managers overseeing various aspects of student affairs.
- Focused on data management, communication, and event coordination.

3.6.9 Dashboard Design

- Create an intuitive and user-friendly dashboard that provides efficient access to course materials.
- Ensure that the dashboard is customizable, allowing users to personalize their learning space.

- Implement a robust notification system for timely updates on new content, announcements, and assignment due dates.

3.6.10 Content Formats and Customization

- Support a variety of file formats, such as PDFs, videos, and interactive simulations, to cater to different learning preferences.
- Provide customization options, allowing users to personalize their learning experience, including the arrangement of courses and resources.

3.6.11 Communication and Collaboration

- Implement robust communication tools, including announcements, discussions, and virtual office hours.
- Develop collaboration tools that enhance group work and peer-to-peer communication, fostering a sense of community.

3.6.12 Accessibility and User-Friendliness

- Prioritize accessibility and user-friendliness, ensuring that the platform accommodates users with varying levels of technological proficiency.

3.7 User Persona

Persona 01: Doaa - The Undergraduate Student

User Persona Details

Name: Doaa

Age: 21

Background: Doaa is an undergraduate student majoring in Computer Science. She's in her third year at the university. She's tech-savvy and comfortable with various online tools and platforms. Her primary goal is to excel in her studies.

User Stories for Doaa

- User Story: As Doaa, I want to be able to access course materials, including lecture notes, slides, and assignments, from a user-friendly dashboard. This way, I can quickly find what I need for my coursework.
- User Story: As Doaa, I want the platform to support various file formats, like PDFs, videos, and interactive simulations, to cater to different types of course content.
- User Story: As Doaa, I want the ability to customize my dashboard, so I can prioritize my most important courses and resources.

- User Story: As Doaa, I want to receive notifications for new content, announcements, and upcoming assignment due dates to stay on top of my coursework.
- User Story: As Doaa, I want a collaborative workspace where I can work on group projects with my peers efficiently.

Empathy Map for Doaa

What Doaa Says

- "I often find it challenging to locate the materials I need for my courses."
- "I wish there was a way to stay updated on my assignment due dates and course announcements."
- "I like having options for customizing my learning space."

What Doaa Does

- Doaa spends a lot of time searching for lecture materials.
- She frequently checks her email for course updates.
- She tries to organize her study environment to minimize distractions.

What Doaa Thinks and Feels

- Doaa feels overwhelmed when materials are disorganized.
- She worries about missing important announcements.
- She enjoys personalizing her learning experience.

Doaa's Pain Points

- Difficulty finding course materials quickly.
- Anxiety about missing important updates.
- Feeling overwhelmed by a cluttered dashboard.

What Doaa Gains

- More efficient access to study materials.
- Reduced stress through better communication.
- A sense of control and focus in her learning.

By understanding Doaa's persona, needs, and pain points, an e-learning platform can be developed or improved to cater to her specific requirements, making her learning experience more efficient and enjoyable.

Persona 02: Hassan - The University Professor

User Persona Details

Name: Hassan

Age: 42

Background: Hassan is a university professor with over 15 years of teaching experience in the field of Computer Engineering. He's well-versed in traditional teaching methods and is adapting to online education. His primary goal is to engage and educate his students effectively.

User Stories for Hassan

- User Story: As Hassan, I want an intuitive content creation tool that allows me to design engaging and interactive online lectures and course materials.
- User Story: As Hassan, I need a platform that supports live video streaming and virtual classroom features for conducting real-time interactive sessions with my students.
- User Story: As Hassan, I'd like a robust discussion forum to encourage student participation and facilitate peer-to-peer learning.
- User Story: As Hassan, I want to be able to track student progress and engagement through analytics to adapt my teaching methods for better outcomes.
- User Story: As Hassan, I need easy integration with the university's grading system and a feature for securely sharing grades and feedback with students.

Empathy Map for Hassan

What Hassan Says

- "Online teaching tools should be as user-friendly as traditional classroom materials."
- "I need a platform that makes it easy for students to ask questions and participate in discussions."
- "Analytics on student engagement can help me identify struggling students and provide timely support."

What Hassan Does

- He spends time creating course materials and lectures.
- He encourages student participation through discussions and assignments.
- He uses analytics to assess student progress.

What Hassan Thinks and Feels

- Hassan values effective teaching methods.
- He feels the need to adapt his teaching style to online platforms.
- He wants to foster a sense of community and engagement in his virtual classroom.

Hassan's Pain Points

- Difficulty in creating engaging online content.
- Limited interaction and engagement in virtual classrooms.
- Challenges in identifying struggling students.

What Hassan Gains

- Enhanced teaching materials and methods.
- Increased student engagement and participation.
- Better support for struggling students through analytics.

Understanding Hassan's persona, pain points, and needs can help in designing an e-learning platform that empowers professors like him to provide high-quality education in the online environment. This persona can guide the development of features and tools tailored to the unique requirements of teaching staff.

Persona 03: Kareem - Student Manager / Management Staff

User Persona Details

Name: Kareem

Age: 35

Background: Kareem works as a student manager at a university, overseeing various aspects of student affairs. He's responsible for ensuring a smooth and efficient learning environment for both students and teaching staff.

User Stories for Kareem

- User Story: As Kareem, I need a comprehensive dashboard that provides an overview of student enrollment, attendance, and performance data to make informed decisions.
- User Story: As Kareem, I want to be able to communicate with students and professors effectively through the platform to address any administrative issues or concerns.
- User Story: As Kareem, I require a feature that allows me to schedule and manage online meetings, workshops, and events for students and teaching staff.

- User Story: As Kareem, I need access to data analytics and reports that help me identify trends, improve student retention, and optimize course offerings.
- User Story: As Kareem, I want a secure and efficient system for managing student records, including enrollment, grades, and course schedules.

Empathy Map for Kareem

What Kareem Says

- "I need quick access to up-to-date information on student enrollment and performance."
- "Communication with students and professors should be seamless to address issues promptly."
- "Data analytics can help us understand and improve student outcomes."

What Kareem Does

- He regularly reviews data and reports on student enrollment and performance.
- He communicates with students and professors to resolve administrative matters.
- He uses data analytics to inform decision-making.

What Kareem Thinks and Feels

- Kareem aims for efficient management of student affairs.
- He wants to provide support and resources for student success.
- He feels that data-driven insights are critical for making informed decisions.

Kareem's Pain Points

- Inefficient access to student data and communication tools.
- Difficulty in managing administrative tasks without proper features.
- The challenge of identifying and addressing student performance issues.

What Kareem Gains

- Streamlined access to critical student data and communication tools.
- Improved administrative efficiency and the ability to support student success.
- Informed decision-making and better student outcomes through data analytics.

Understanding Kareem's persona and the challenges he faces in managing student affairs can guide the development of an e-learning platform with administrative features that empower professionals like him to enhance the overall educational experience and student support services.

3.8 Use Cases

1. Admin Creates User Account

- Admin Creates a new user account with user Email and ID
- It Auto Generates a random password for the account

2. User Logins

- User clicks on the "LogIn" button.
- User enters their registered College ID/email and password.
- System validates the entered credentials.
- If valid:
 - Users gain access to their account and the platform.
- If invalid:
 - System displays an error message.
- User has the option to reset the password or contact support.

3. User Resets Password

- User clicks on the "Forgot Password" link.
- User is prompted to enter their registered email address.
- System verifies the email address's existence in the database.
- If the email is valid:
 - System sends a password reset link to the user's email.
 - User receives the email and clicks on the reset link.
 - User is redirected to a page where they can create a new password.
 - User enters a new password and confirms it.
 - The system updates the user's password.
 - User can now log in with the new password.
- If the email is not valid:
 - System displays an error message.
 - User is prompted to re-enter their email address.

4. Teacher Adds Assignment

- Teacher logs into their account.
- Teacher accesses the specific course where they are the instructor.
- Teacher navigates to the assignment creation section.
- Teacher provides assignment details, including title, description, and due date.
- Teacher sets assignment parameters, such as maximum points.

- Teacher creates the assignment.
- The system notifies enrolled students about the new assignment.

5. Student Submits Assignment

- Students log into their account.
- Students access the course where they have an assignment.
- Student navigates to the assignment submission section.
- Students upload their assignment file or enters text.
- Student submits the assignment.
- The system records the submission and notifies the Teacher.

6. Student Checks Course Grades

- Student logs into their account.
- Student accesses the course.
- The system displays the quizzes and assignments' grades for this specific courses

7. Student Labels and Categorization/Platform Organization

- System must organize content with clear labels, categories, nested folders, and efficient tagging systems for easy resource discovery.

8. Student Self-Enrolls with Codes

- Student receive the enrollment code and logs into their account.
- Student navigates to the "Enroll in a Course" section.
- Student enters the enrollment code provided by the teacher.
- System verifies the code's validity.
- If the code is valid:
 - Student is successfully enrolled in the course.
 - System adds the course to the student's enrolled courses.
- If the course is not full:
 - Student can now access the course content.
 - If the course is full (maximum enrollment reached):
 - System displays a message indicating that the course is full.
 - Student can join a waiting list if available or choose another course.

- If the code is invalid or expired:
- System displays an error message.
- Student has the option to re-enter a valid code.

9. Admin Creates Courses

- Admin logs into their account.
- Admin accesses the course creation section.
- Admin provides course details, including title, image, description, code, enrolment code, and assigned teachers.
- Admin creates the course.
- The system makes the course available to enrolled students.

10.Teacher Adds/Reuses Material

- Teacher logs into their account.
- Teacher navigates a course he previously given and goes to a specific post
- Teacher can reuse the post details by clicking a button.
- Teacher will choose another course and go to their post creation page with all the data prefilled with the older post data

11.Teacher Adds Quiz

- Teacher logs into their account.
- Teacher accesses the course where they want to create a quiz.
- Teacher creates a new quiz with questions, including text, multiple-choice.
- Teacher configures the Grade of each question.
- Teacher configures grading options (automatic or manual).
- Teacher configures the time for the quiz.
- Teacher publishes the quiz for students.
- The system notifies enrolled students about the new quiz.

12.Student Submits Quiz

- Student logs into their account.
- Student accesses the course with a quiz assignment.
- Student takes the quiz, answering questions.
- Student submits the quiz.
- System grades the quiz automatically (if configured) or awaits manual grading by the instructor.

- The system records the submission and notifies the Teacher.

13.Teacher Grades Quiz

- Teacher can access a certain Quiz by going to the course home page and checking the quiz menu
- Upon selecting the desired quiz and accessing its page, he will find a tab where a list of all students in this course will be provided with their submission status
- He can select a submission where he will go through each question and that students answer manually and select whether it is correct or not

14. Student Checks Pending deadlines:

- Student can either Enter a course home page and check the quizzes and assignment sections
- Alternatively the student can access the calendar page where all upcoming dates for pending tasks will be shown

15. Teacher Creates Post

- Teacher can Enter any course home page where he has privilege to post and simply access the post creation area
- He must add a title and description for the post
- He can Add a schedule date, a poll, and materials to the post

16.Teacher Integrates YouTube Video

- Teacher logs into their account.
- Teacher accesses the course where they want to include a YouTube video.
- When teacher creates a post they can paste a YouTube link inside the post description and it will get pasted into an embed automatically
- System validates the URL and fetches the video details.
- System adds the YouTube video in the course content.

17.User Accesses Settings

- Users can access their account settings by clicking on their profile picture or username.
- Within the user settings section, users can customize various aspects of their platform experience, including:
 - **Profile Information:**

- Users can update their profile picture.
- Users can edit their name, bio, or other personal details.
- **Privacy Settings:**
 - Users can configure privacy settings for their profile, such as who can view their profile and contact them.
- **Notification Preferences:**
 - Users can manage their notification preferences, including email notifications, course updates, and announcements.
- **Language Preferences:**
 - Users can select their preferred language for the platform's interface.
- **Theme Selection:**
 - Users can choose between different themes (e.g., light mode, dark mode) for the platform's appearance.
- **Accessibility Settings:**
 - Users can enable or customize accessibility features, such as text-to-speech or high-contrast mode.
- **Security Settings:**
 - Users can update their password or enable two-factor authentication for added security.
- **Email Preferences:**
 - Users can specify their email communication preferences, such as newsletter subscriptions.
- **Data Management:**
 - Users can access tools to manage their data, including downloading their course materials and personal information.
 - Users can save their settings, and the platform will apply the changes accordingly.

18.Student Feedback Mechanisms

- System must allow learners to provide feedback on courses, content, and the platform itself through surveys, ratings, and open forums.

19.Assessment Tools/Teacher Dashboard

- System must offer assessment tools for instructors to design and administer quizzes, assignments, and assessments.
- System must provide automated grading, feedback mechanisms, course modifications, and course analytics to teachers.

20.Student Downloads Materials

- Students logs into their account.
- Students accesses the course for which they want to download materials.
- Students navigates to the "Course Materials" or "Resources" section of the course.
- Students locates the specific material they want to download (e.g., a document, video, presentation).
- Students clicks on the material to download it.
- Students selects the download location and confirms the download.
- The system initiates the download process.

21. Admin Manages User

- The Admin can view a list of all users registered on the platform.
- The Admin can search for specific users based on criteria such as name, email, or role (Teacher, Student, etc.).
- The Admin can access individual user profiles to view and edit their information.
- The Admin can reset passwords for users or force password changes.
- The Admin can deactivate or suspend user accounts if necessary.
- The Admin can reactivate previously suspended accounts.

22. Admin Manages Courses

- The Admin can view a list of all courses offered on the platform.
- The Admin can modify or delete courses.
- The Admin can assign or change instructors for courses.
- The Admin can monitor course enrollment and view enrollment statistics.
- The Admin can set course enrollment limits.
- The Admin can archive or temporarily hide courses.
- The Admin can review and approve/disapprove course content created by teachers.

23. Teacher Assigns Roles and Permissions

- The Teacher can define and manage user roles and permissions.
- The Teacher can create custom user roles with specific permissions.
- The Teacher can assign roles to users or groups of users.
- The Teacher can revoke or modify permissions for specific users or roles.
- The Teacher can track changes to roles and permissions.

24.Admin Reviews Reports and Analytics

- The Admin can access comprehensive reports and analytics on user activity, course engagement, and platform usage.
- The Admin can use analytics to identify trends, areas for improvement, and potential issues.

25.Admin Supports User

- The Admin can provide support to users, including responding to inquiries and troubleshooting issues.
- The Admin can access a support ticketing system to manage and resolve user-reported problems.

26.Admin Manages Platform Maintenance and Updates

- The Admin can schedule and perform routine maintenance tasks, including updates and backups.
- The Admin can ensure the platform remains up-to-date with the latest security patches and features.

3.9 Use Case Diagram

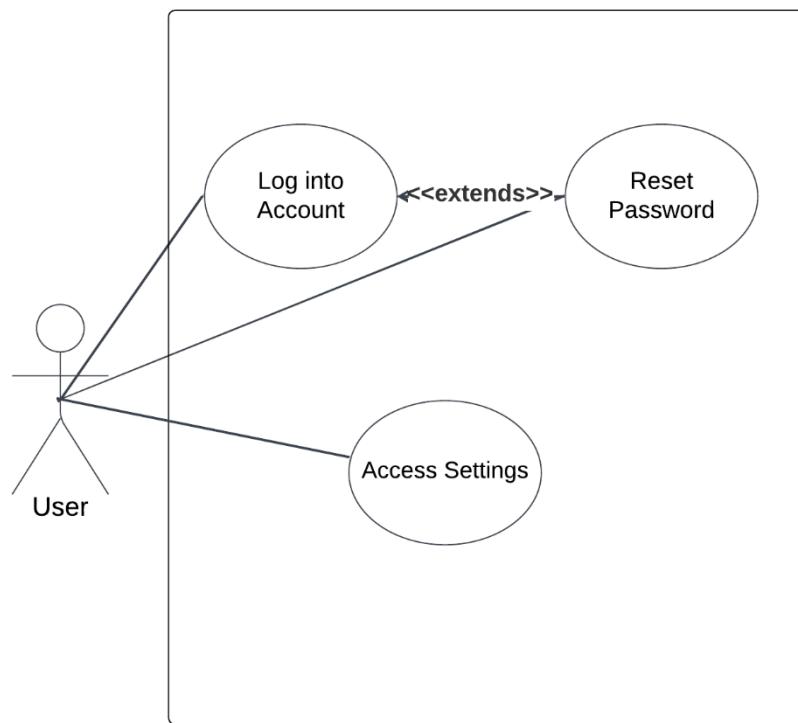


Figure 2 User use case diagram

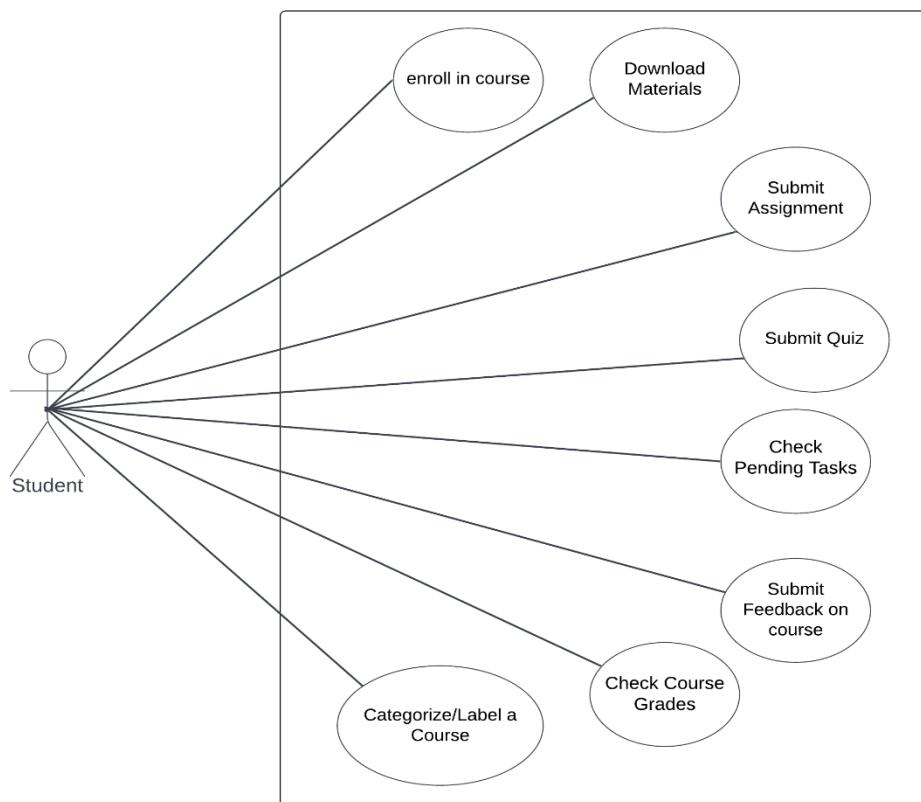


Figure 3 Student use case Diagram.

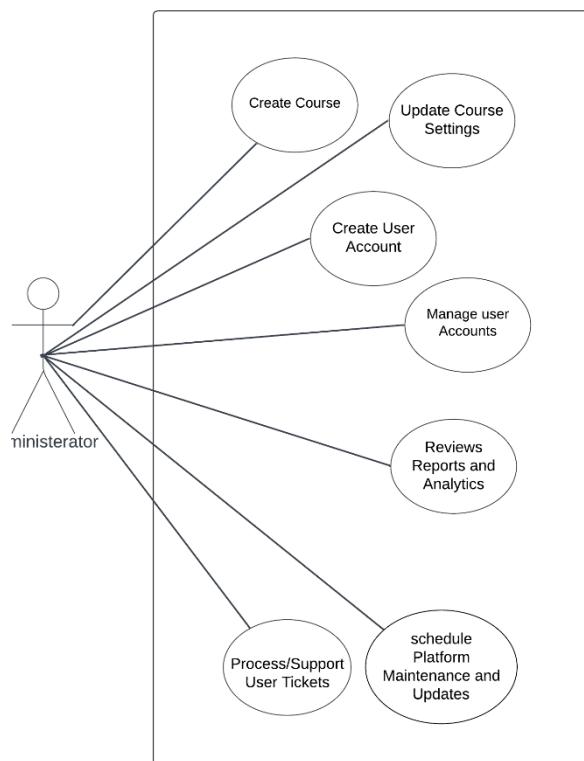


Figure 4 Administrator use case Diagram.



Figure 5 Teacher use case Diagram.

3.10 Use Case Descriptions

1: User Logins

Table 3 Use Case Description 1

Use case ID	Case 2	
Use Case Name	User Login	
Actors	Student, teacher, Admin	
Pre-condition	User is registered.	
Post-condition	User is logged into the platform.	
Flow of events	User Action	System Action
	1. Users enter their registered email and password.	
		1.1. System validate the entered credentials.
Exception scenario	Invalid login credentials.	

2: Student enrolls in Course:

Table 4 Use Case Description 2

Use case ID	Case 4	
Use Case Name	Course Enrollment	
Actors	Student	
Pre-condition	Student is logged into their account.	
Post-condition	Student is enrolled in the course and can access course content.	
Flow of Events	User Actions	System Actions
	1. Student navigate to the course catalog or search feature.	
		1.1. System display the course to the student
	2. Student enter enrollment code or invitation link	
		2.1. System enroll the student in the course
Exception scenario	Course code or invitation link is not valid Or Course is at maximum enrollment capacity.	

3: Teacher Add Assignment:
Table 5 Use Case Description 3

Use case ID	Case 5	
Use Case Name	Assignment Creation	
Actors	Teacher	
Pre-condition	Teacher is logged into their account and accesses the course.	
Post-condition	Assignment is created and students are notified.	
Flow of Events	User Actions	System Actions
	1. Teacher provide assignment details, including title, description, and due date.	
	2. Teacher create the assignment.	1.1. The system notify enrolled students about the new assignment.
Exception scenario	None	

Chapter 4: Design

4.1 Architecture

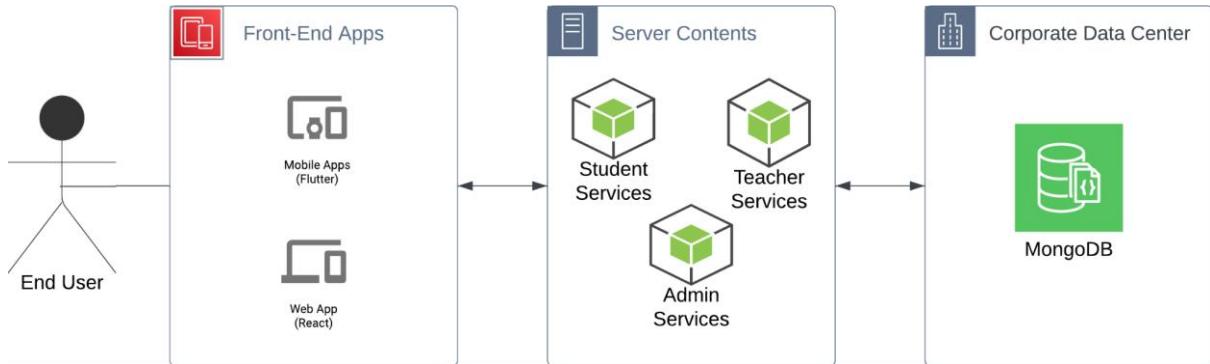


Figure 6 high-level architecture.

For Academia, the System will be split into a simple MVC (Model View Controller) architecture with some minimalistic microservices architecture. The three main modules are independent of each other and are based on XAPI (Experience Application programming interface) guidelines.

- Front-end Applications would have their own hosting server that is independent of the other modules and both simply serve as the interface to receive the data from and manage data that may be on the client side (cookies, downloadable data, uploadable files)
- On the Server The technology utilised will be Node.js Express servers as our objects are JSON-based and databases are document-based, Node.js will provide more functionality and speed to manage our data efficiently. Each stakeholder will have access or their own service which will help separate important computing resources. A teacher would not use their services as much as a student so their services can receive less computing power, while an admin analytical service may cause a big load on the servers.
- The Database technology will be MongoDB-based as a NoSQL database will be more suitable for the specification by the XAPI guidelines and allows for easier scalability.

Given the requirements of Academia and the stated above architecture, Special attention should be given to the database schema to save different kinds of files and to specific features like language compatibility and client-side management of files.

4.2 Class Diagram

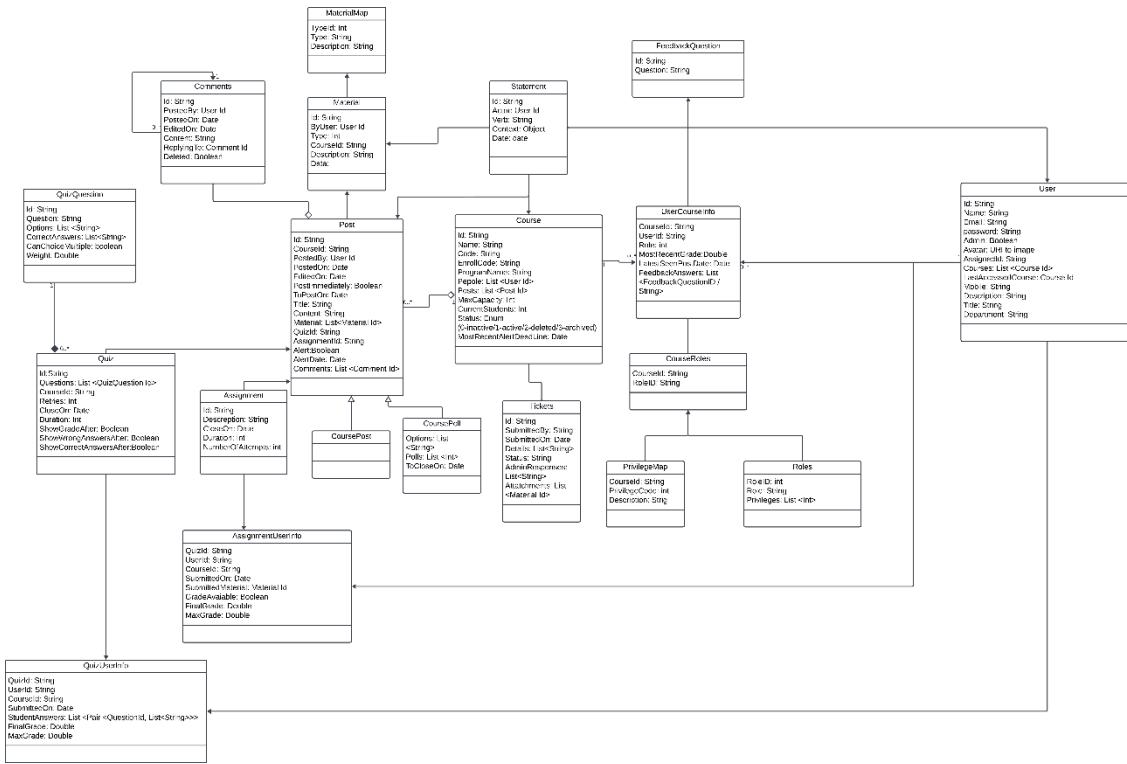


Figure 6 Class diagram

4.3 BPMN Diagrams

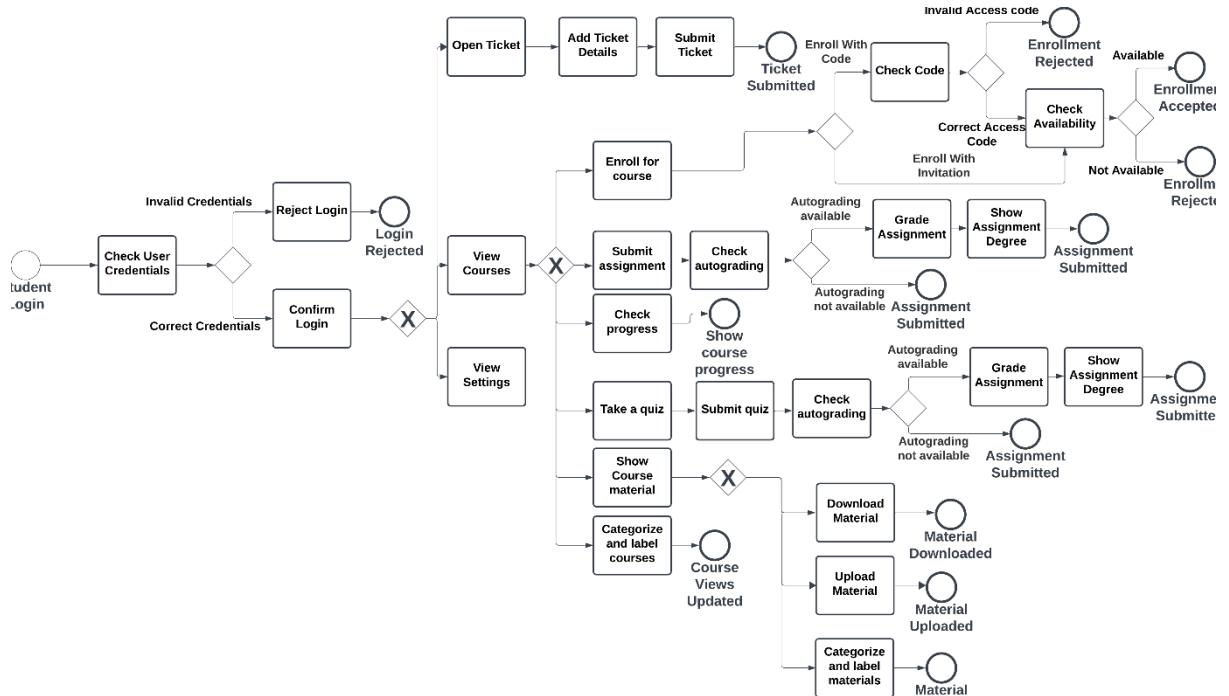


Figure 7 Student BPMN Diagram

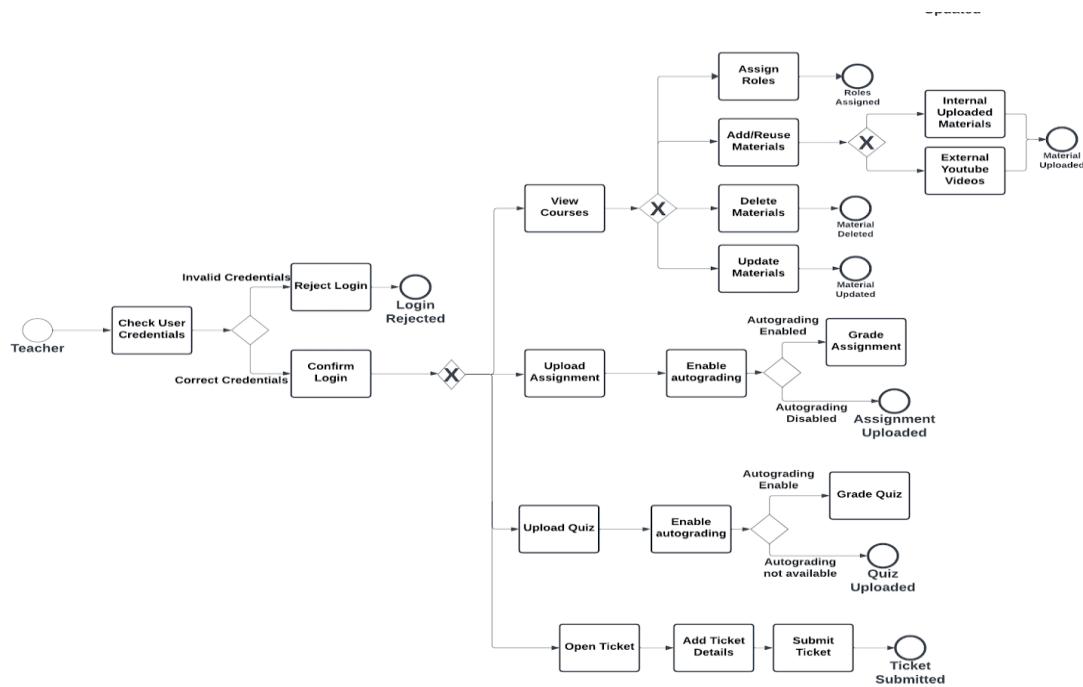


Figure 8 Teacher BPMN Diagram

4.4 Sequence Diagrams

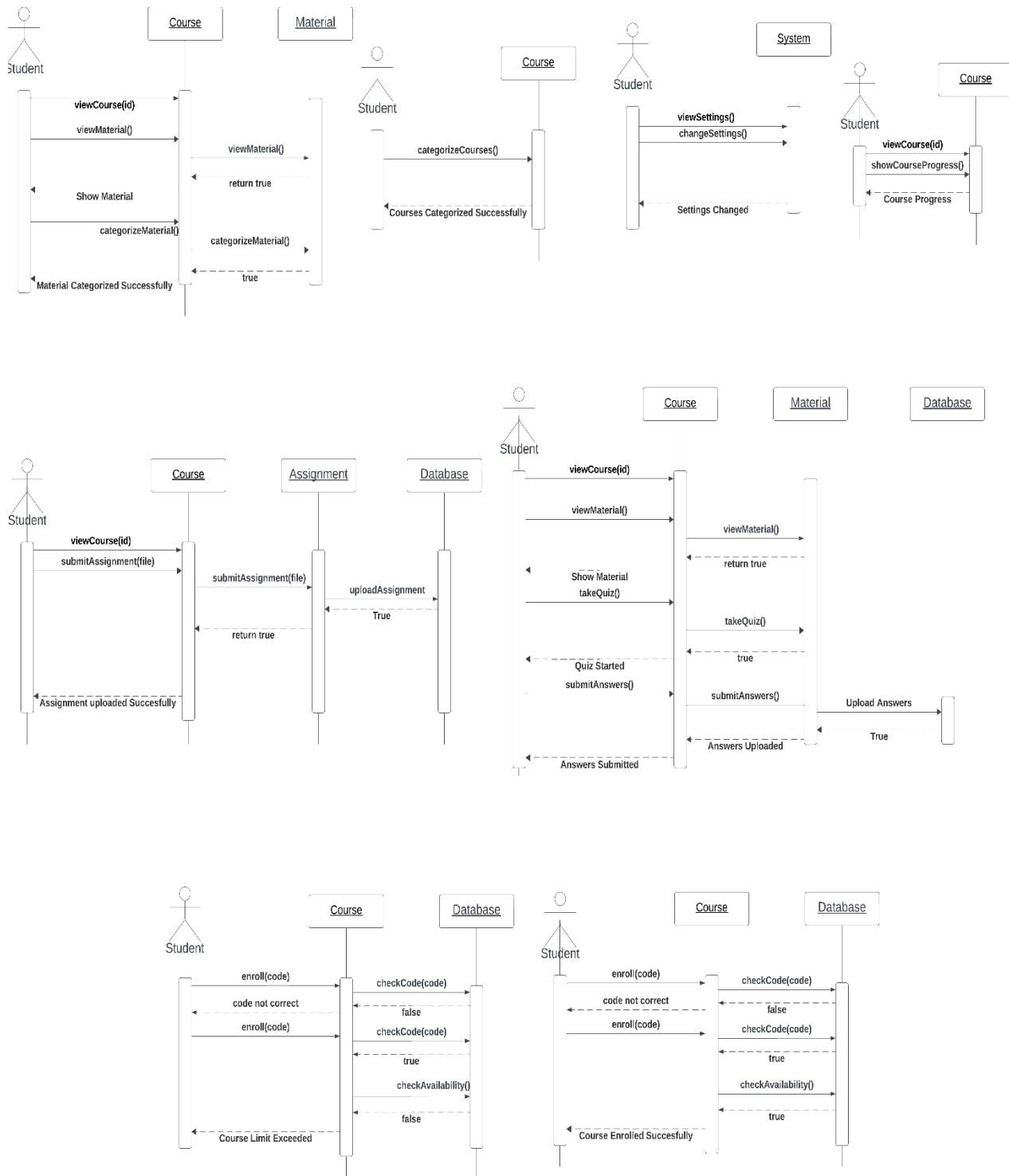


Figure 9 Student Sequence Diagrams

4.5 User Interface Screens

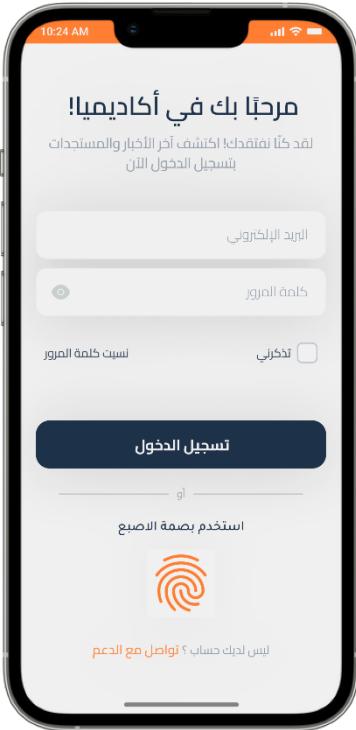


Figure 12 Login / Empty State



Figure 10 Home / Filled State



Figure 11 Add Course



Figure 13 Single Course



Figure 14 Quizzes List



Figure 15 Calendar.



Chapter 5: Testing

For the purpose of our LMS, Testing will focus on 2 aspects. First is unit testing of the backend server, which can be done manually using the Postman collection for the sever. Secondly is the functionality testing to ensure both mobile and web versions function properly, include all relevant use cases and are ready for acceptance test by users.

Below are a sample of both the unit and functional testing cases with their expected results and possible exceptions. For a full list please refer to the appendix.

5.1 Manual Unit Testing

Table 6 Unit Testing 1

Test case ID	UTC01
Title	Auth/Login Endpoint Test
Pre-Conditions	None
Test Data/ Request body	<pre>{ "actor": { "name": "Guest", "id": "null" }, "verb": { "id-enum": "log-into-account", "display": { "en-US": "log user" } }, "object": { "id": "null", "objectType": "Agent", "definition": { "name": { "en-US": "user data" } } }, "context": { "user": { "email": "test2eeee3e@email.com", "password": "1234567" } } }</pre>

	<pre> } } } </pre>
Expected Results	<p>A statement object containing a user object</p> <pre> "user": { "token": "-----", "_id": "7d0799e4-9165-465d-9e34-cd3c2a0e739c", "name": "Admin 4", "email": "test04@email.com", "isAdmin": true, "avatar": "", "assignedId": "20200004", "courses": ["501fbcf4-436b-422d-9f60-ed408c892577", "89325998-9444-4dba-b9ba-c15ae9f83db6"], "lastAccessedCourses": [], "contacts": [], "description": "", "title": "Guest", "department": "", "createdOn": "2024-06-21T00:08:36.560Z", "editedOn": "2024-06-28T11:28:33.965Z", "__v": 2 } </pre>
Exceptions	<pre> { "error": "Invalid Password." } { "error": "\"context.user.email\" length must be at least 7 characters long" } { "error": "\"context.user.password\" is not allowed to be empty" } </pre>

5.2 Manual Functionality Testing

Table 7 Functionality Testing 1

Test case ID	FTC01
Title	User Logins
Test Scenario	Check Log In with invalid Email and Password
Pre-Conditions	None
Test steps	<p>Web:</p> <p>From Landing Page Navigate to log in button</p> <p>Press it and fill form</p> <p>Submit</p> <p>Mobile:</p> <p>After Onboarding Screens The login forms appears</p> <p>Fill form</p> <p>Submit</p>
Test Data	Email = test2eeee3e@email.com Password = 1234567
Expected Results	Login successful and the user is guided to their homepage
Exceptions	Error pop up showing which field input was wrong

6. Conclusion and Future Works

This project hopes to be the first step in building an Arabic focused, simple, efficient, easy to use and intuitive LMS meant for the Egyptian student. By following international standards, it aims to not only create an easy experience to students but to also allow teaching staff and administration additional tools to help them manage their courses.

We hope both the demo and documentation suffice as proof of the feasibility of such a project and can kickstart actions to improve higher education in Egypt with local resources and expertise instead of relying on foreign systems build for English speakers.

At the end we hope this documentation serves as the foundation for this LMS to be brought by fruition by Cairo university or as references for future ambitious Educational Information Systems

6.1 Future Works:

As any system in existence, improvements and innovations are paramount for its progress. So we will list below some of the fields or directions we think our project may benefit from in the future.

- Inclusion of AI assistant:

Ai Assistants which can be integrated through existing services like Gemini API found [here](#).

And can be used to aid students on the fly when faced with problems understanding some subject or difficult language/jargon used by the professor.

- Further adherence to XApi standards:

XApi standards are what allows this system a degree of operability with other LMSs also following XAapi, but it is still possible to adhere to more strict standards to allow operability by similar systems and not only LMS and to ease data transfer between database systems.

- Data Science Models

A useful yet expensive component that is possible to add are simple statistical models or even complex machine learning models to empower both administrators and teaching staff.

For administrators it can be used to predict positive progress of a certain course or foreshadow problems in student interactions or grades.

For teaching staff, machine learning model can be used to recognise what kind of activities and tasks students respond more to it and what possible approaches that have been successful before can be used here to help students.

Appendix

A. Competitor Analysis

For the full transcript please refer to the Appendix folder attached to this document, a high-quality PDF of the analysis table should exist there.

B. Student Survey

For the full transcript please refer to the Appendix folder attached to this document, a PDF Form of the survey should exist there.

C. Teacher Survey

For the full transcript please refer to the Appendix folder attached to this document, a PDF Form of the survey should exist there.

D. Use Case Descriptions

For the full transcript please refer to the Appendix folder attached to this document, a PDF Form of the survey should exist there.

E. Use Case Diagrams/BPMN/Sequence diagrams/ERD

For the full Detailed diagrams please refer to the Appendix folder attached to this document, a PNG Form of the diagrams should exist there.

F. Responses and data analysis

For the full transcript please refer to the Appendix folder attached to this document, an excel sheet with the results and analysis steps should exist there.

G. Students Survey Statistics Results:

For the full transcript please refer to the Appendix folder attached to this document, an excel sheet with the results and analysis steps should exist there under “Students Form Statistics”.

Total Participants: 98

General Info “Quantitative”

1. In which language would you like to view the form questions?

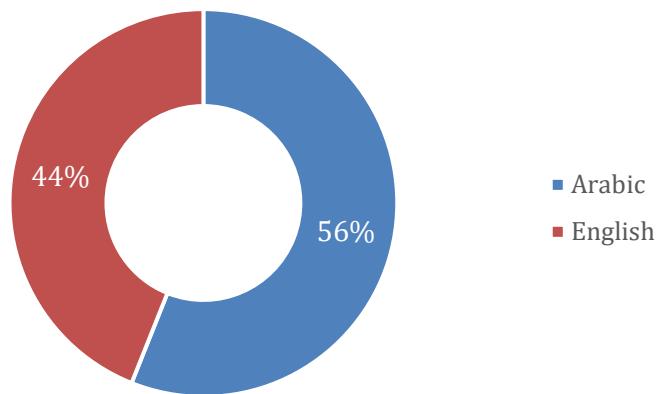


Figure 16 Survey Language Chart

2. What is your current university year?

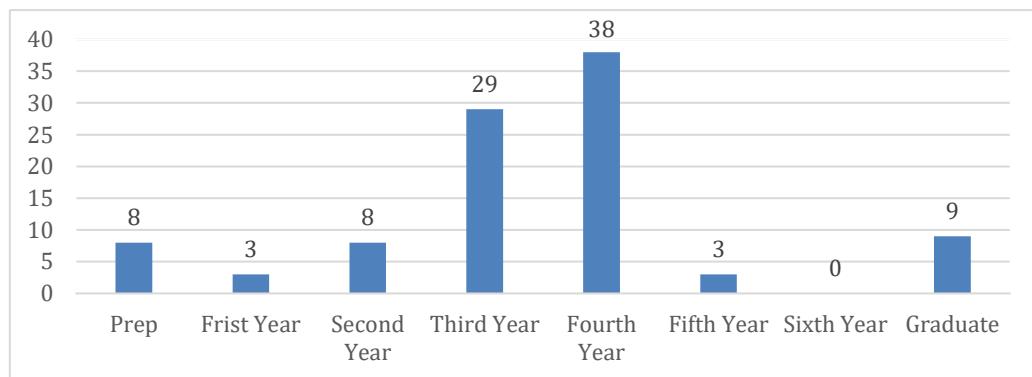


Figure 17 Survey University Year Chart

3. What university are you currently attending?

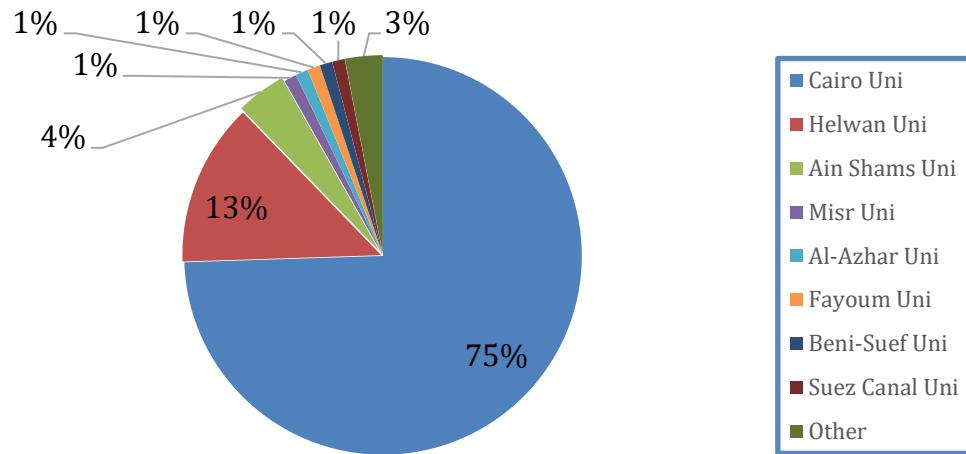


Figure 18 Survey University Chart

4. What is your faculty or area of study?

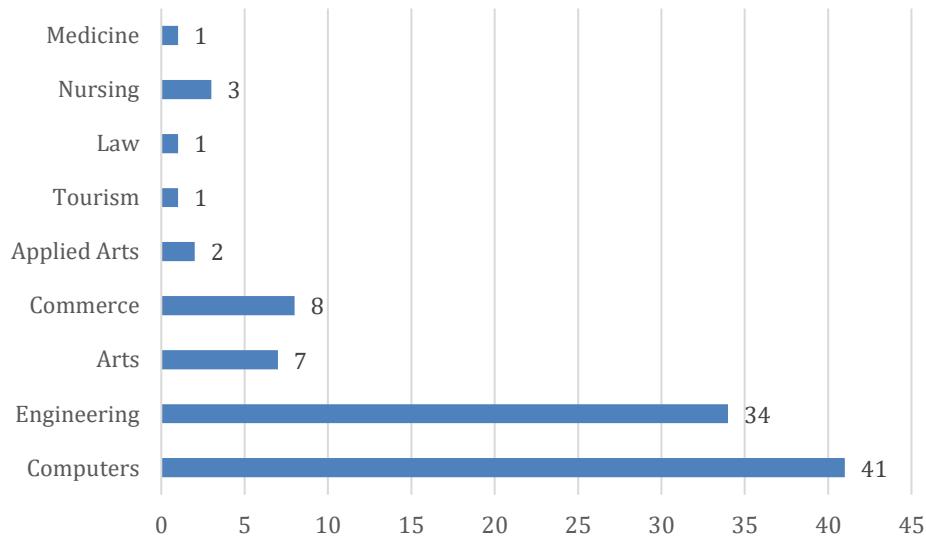


Figure 19 Survey Faculty Chart

5. Have you ever used any online learning platform during your university studies?

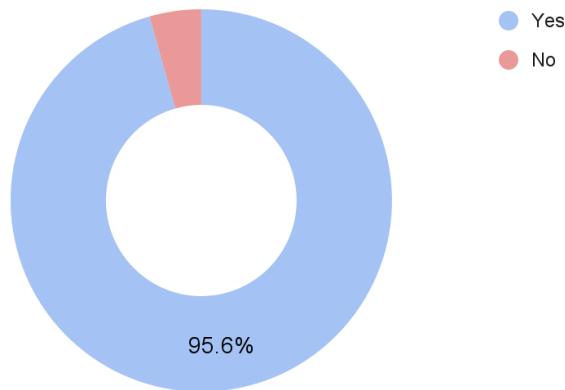


Figure 20 Survey LMS Previous Usage Chart

Usage of E-Learning Platforms in Higher Education

6. Please specify the platforms you have used (you can select multiple platforms based on your personal usage).

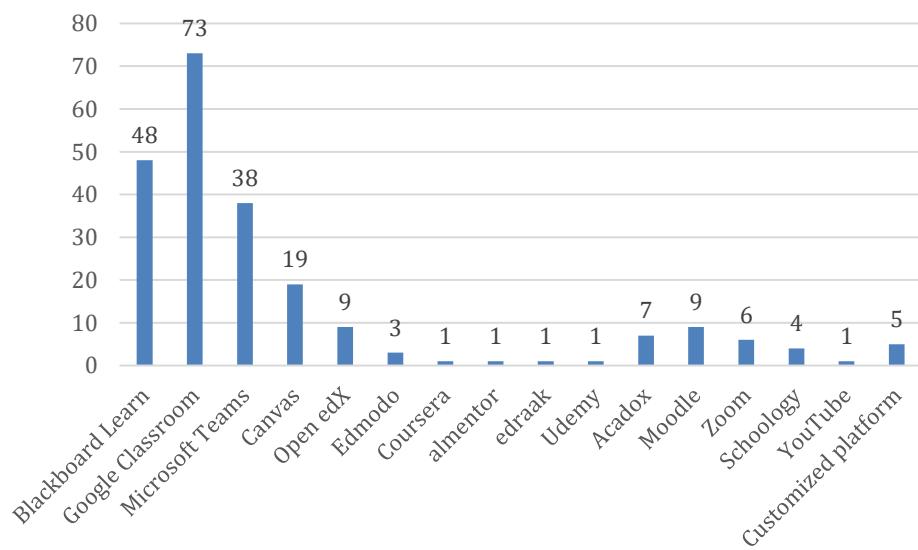


Figure 21 Survey LMS Cumulative Usage Chart

7. Among these platforms, please select the platform that you prefer to use primarily.

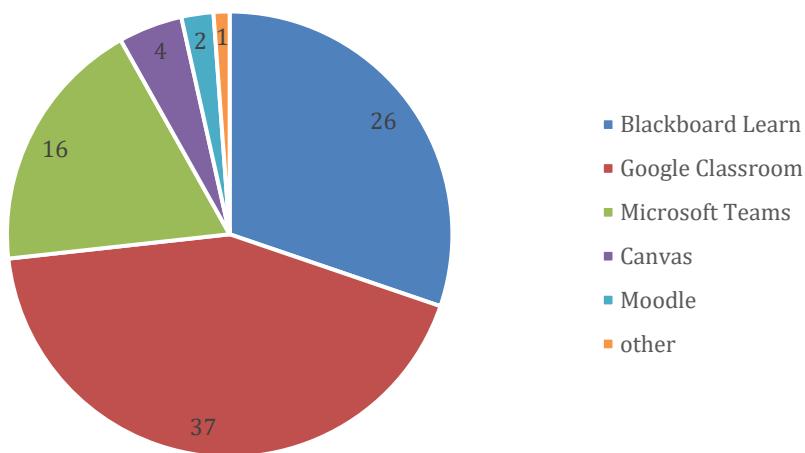


Figure 22 Survey Preferred LMS Chart

a. Blackboard Learn

8. On a scale of 1 to 10, rate your overall experience with the platform?

- Based on the responses, the ratings range from 4 to 10, with an average rating of approximately 7.8.

9. Could you briefly explain the reason behind your rating choice?

- Based on the provided explanations for the ratings of Blackboard Learn, here is a summary of the reasons behind the rating choices:

Positive aspects:

- Blackboard Learn allows for uninterrupted lectures and provides the option to save recorded lectures.
- The platform is comprehensive and consolidates course content in one place.
- It is user-friendly and easy to navigate.
- It offers features such as meetings, grades, and exams.
- It is stable, easy to use, and has integrated features.
- It helps in organizing educational materials and recorded lectures.
- It saved a significant amount of time and facilitated learning.

Negative aspects:

- The user interface (UI) can be complex or messy for some users.
- There are occasional technical issues during online quizzes.
- Some desired functionalities are missing.
- It may be unavailable or restricted to specific universities.

- It can be clunky or difficult to use at times.
- There were complications with streaming and curriculum collection.

Some students experienced problems during enrolment due to codes or restrictions.

SWOT Analysis for Blackboard Learn:

Strengths:

- Uninterrupted lectures and the option to save recorded lectures.
- Comprehensive platform that consolidates course content in one place.
- User-friendly interface and easy navigation.
- Offers essential features like meetings, grades, and exams.
- Stable, easy to use, and integrated features.
- Aids in organizing educational materials and recorded lectures.
- Saves time and facilitates learning.

Weaknesses:

- Complex or messy user interface for some users.
- Occasional technical issues during online quizzes.
- Missing desired functionalities.
- Limited availability or restrictions to specific universities.

Opportunities:

- Addressing the user interface issues to improve overall user experience.
- Resolving technical glitches and enhancing platform performance.
- Incorporating additional features to meet diverse educational needs.
- Expanding availability to reach a broader user base.

Threats:

- Competition from other e-learning platforms.
- Negative user experiences leading to reduced adoption.
- Technological disruptions impacting platform usability.

10. On a scale of 1 to 5, rate the performance and speed of the platform.

- Based on the responses, the ratings range from 2 to 5, with an average rating of approximately 3.5.

These ratings suggest that the majority of students perceive the performance and speed of the platform as satisfactory, with some room for improvement.

Understanding the user perception of the platform's performance and speed helps in identifying areas that may require optimization to ensure a smoother and more efficient user experience.

11. On a scale of 1 to 5, rate the features/tools available on the platform.

- Based on the responses, the ratings range from 3 to 5, with an average rating of approximately 4.

These ratings indicate that the majority of students perceive the features/tools available on the platform as satisfactory to good.

Understanding the user perception of the available features/tools helps in identifying their effectiveness and areas that may require enhancement or additional functionalities to better support the learning process.

12. On a scale of 1 to 5, rate the user interface of the platform.

- Based on the responses, the ratings range from 2 to 5, with an average rating of approximately 3.7.

These ratings suggest that the user interface of the platform is generally perceived as average to good, with some room for improvement.

Understanding the user perception of the user interface helps in identifying areas that may require enhancement to improve the usability, clarity, and overall user experience.

13. What improvements or changes would you like to see in the platform?

- Based on the responses, here are some common themes:

- Improved communication features: Some users expressed a desire for better communication channels between students, instructors, and administrators, allowing for easier interaction and discussions related to course content.
- Easier navigation and user interface: Several users mentioned the need for a more user-friendly interface, with simplified navigation and a cleaner layout to reduce clutter and enhance the overall user experience.
- Enhanced speed and performance: A few users highlighted the importance of improving the platform's speed and performance, ensuring smooth and efficient usage.
- Accessibility and availability: Some users expressed a desire for the platform to be freely accessible to all users and available for use by everyone, suggesting the importance of inclusivity.
- Clear instructions and tutorials: A few users mentioned the need for clear instructions and tutorials, particularly regarding the registration process, connectivity issues, and how to access and complete assignments.
- Improved video streaming and quality: Some users requested improvements in the quality of online lectures, better video streaming, and enhanced connectivity to ensure a seamless learning experience.

b. Google Classroom Users

8. On a scale of 1 to 10, rate your overall experience with the platform?
 - Based on the responses, the ratings range from 7 and 10, with an average rating of approximately 8.54.
9. Could you briefly explain the reason behind your rating choice?
 - Based on the comments, we can identify several reasons behind the rating choices for the overall experience with Google Classroom. Here are the key points:

Positive aspects:

- Ease of use: Users find Google Classroom easy to navigate and utilize without requiring extensive explanation or training.
- Communication: The platform facilitates communication between students and teachers, allowing for messaging and task reminders before deadlines.
- Organization: Users appreciate the organizational features of Google Classroom, such as task tracking, submission dates, and easy access to learning materials.
- Integration with Google Drive: The seamless integration with Google Drive allows for easy access to and storage of learning materials.

Negative aspects:

- Lack of live meetings: Some users mention the absence of live meeting functionality within Google Classroom as a drawback.
- File download limitations: Users note that direct file downloads to their devices are not readily available and require specific methods.
- Communication issues: Some users mention challenges in communication between instructors, indicating that the platform's communication features may need improvement.
- Notification issues: Occasionally, users report issues with notifications not being received promptly or consistently.
- Desired features: Users express a desire for additional features, such as dark theme support, support for quizzes, improved separation between teacher and student posts, and enhanced meeting capabilities.

Overall, most users find Google Classroom easy to use, efficient, and helpful for organizing their academic activities. However, there are suggestions for improvements and the addition of certain features to enhance the platform's functionality.

SWOT Analysis for Google Classroom:

Strengths:

- Ease of use and user-friendly interface.
- Effective communication features between students and teachers.
- Organizational tools for task tracking and submission dates.
- Seamless integration with Google Drive for easy access to learning materials.
- High overall user satisfaction, with an average rating of 8.54 out of 10.

Weaknesses:

- Lack of live meetings functionality within the platform.
- Some users face challenges with file download limitations.
- Communication features may need improvement based on user feedback.
- Occasional notification issues impacting timely updates.

Opportunities:

- Introducing live meeting capabilities to enhance real-time interaction.
- Improving file download processes for a smoother user experience.
- Refining communication features to address user concerns.
- Enhancing notification systems for more reliable and timely updates.
- Adding desired features like dark theme support, support for quizzes, and improved post separation.

Threats:

- Competition from other e-learning platforms offering similar functionalities.
- Potential user dissatisfaction if identified weaknesses are not addressed.
- Technological disruptions affecting platform performance and reliability.

10. On a scale of 1 to 5, rate the performance and speed of the platform.

- The average rating based on the responses is approximately 4.14, indicating a generally positive perception of the platform's performance and speed.

11. On a scale of 1 to 5, rate the features/tools available on the platform.

- Based on the responses, the ratings for the available features and tools range from 1 and 5, with an average rating of approximately 3.77.

12. On a scale of 1 to 5, rate the user interface of the platform.

- Based on the responses, the ratings for the User Interface range from 1 and 5, with an average rating of approximately 3.67.

13. What improvements or changes would you like to see in the platform?

Based on the feedback provided, users have expressed various suggestions and improvements they would like to see in the platform. Some of the common suggestions include:

- Improved Communication: Easier and more direct communication with supervisors or instructors.
- User Interface: Making the interface more user-friendly and familiar, possibly by adopting elements from well-known platforms like Facebook, WhatsApp, or YouTube.
- Better Organization: Implementing clearer organization, such as having organized folders within each course or subject.
- Direct Downloading: Allowing direct downloads similar to Google Drive, without the need to go to another platform.
- Dark Mode: Adding a dark mode option for improved readability and reduced eye strain.
- Enhanced Search Tools: Incorporating additional tools to help users find specific content more easily.
- Online Meetings: Introducing the ability to conduct online meetings within the platform.
- More Features and Settings: Providing more customizable features and settings to tweak the user interface.
- Simplicity and Clarity: Simplifying the platform for better usability and clearer navigation.
- Improved Recordings and Live Sessions: Enhancing the quality and features of recorded lectures and live sessions.

It's important to note that these suggestions come from individual users with their unique perspectives and preferences. Implementing changes to the platform would require careful consideration by the platform's developers, considering user feedback and the platform's overall goals and capabilities.

F. User Research Plan

For the transcript of the plan please refer to the **Appendix Folder > Design Chapter Documents > UX Foder > User research plan**

G. User Research Report

1. Introduction

1.1 Background

The E-Learning Platform project is a critical educational tool that supports students, teaching staff, and student management professionals. Its success is dependent on its ability to meet the evolving needs and preferences of its users. To ensure its effectiveness, a user-centered approach was adopted to enhance the user experience.

1.2 Objectives

The primary objectives of this user-centered approach were:

- Identify challenges and pain points experienced by users.
- Determine essential features and tools that users require for an optimal experience.
- Gather user preferences and suggestions for platform improvement.

2. Methodology

2.1 Research Methods

To achieve the objectives, a mixed-methods approach was employed, combining qualitative user interviews and quantitative online surveys. This allowed for a comprehensive understanding of user perspectives.

2.2 Participant Recruitment

Participants were recruited through various channels, including online platforms, educational institutions, and social media groups. A diverse group of users was involved, including students, teaching staff, and student management professionals.

2.3 Data Collection

Data was collected through:

- **Semi-structured Interviews:** Conducted remotely via video conferencing, these interviews provided in-depth insights into user experiences.
- **Online Surveys:** Structured questionnaires in the form of online surveys gathered quantitative data from a larger user base.

3. User Profiles

3.1 Student Users

- Undergraduate and graduate students
- Varying levels of technological proficiency
- Seeking efficient access to course materials and effective communication tools

3.2 Teaching Staff Users

- Professors and educators with extensive teaching experience
- Adapting to online teaching methods
- Focused on content creation, interaction, and analytics

3.3 Student Management Users

- Student managers overseeing various aspects of student affairs
- Focused on data management, communication, and event coordination

4. Key Findings

4.1 Challenges and Pain Points

Student Users

- Difficulty Locating Course Materials: Students often struggle to find course materials quickly, causing frustration and inefficiency.
- Anxiety About Missing Updates: Students experience anxiety when they miss important updates and notifications, leading to missed deadlines.
- Overwhelmed by Disorganization: The disorganization of materials within the platform contributes to feelings of being overwhelmed.

Teaching Staff Users

- Challenges in Creating Engaging Content: Teaching staff encounter difficulties when trying to create engaging online content for students.
- Limited Interaction and Engagement: They note that there is limited interaction and engagement in virtual classrooms, impacting the quality of education.
- Difficulties in Identifying Struggling Students: Teaching staff expressed the need for tools to help them identify and support struggling students effectively.

Student Management Users

- Inefficient Access to Student Data: Student management professionals often face inefficiencies in accessing student data and communication tools.
- Difficulty Managing Administrative Tasks: The absence of certain features makes it challenging for them to manage administrative tasks effectively.
- Challenges in Identifying and Addressing Student Performance Issues: The inability to identify and address student performance issues in a timely manner poses a significant challenge.

4.2 Essential Features and Tools

Key Requirements Identified

- **Access to User-Friendly Dashboards:** Users of all profiles emphasized the importance of intuitive and user-friendly dashboards for efficient access to course materials.
- **Support for Diverse File Formats:** Users expect support for various file formats, including PDFs, videos, and interactive simulations, to cater to different learning preferences.
- **Customization Features:** Users want customization options to tailor their learning experience, allowing them to personalize their learning environment.
- **Timely Notifications:** Users highlighted the need for timely notifications for new content, announcements, and assignment due dates.

- **Collaboration Tools:** The inclusion of collaboration tools for efficient group work and peer-to-peer communication was highly valued.

4.3 User Preferences and Suggestions

Users expressed a clear preference for:

- Clear and intuitive dashboard designs.
- Rich support for multimedia and interactive content.
- Flexibility in customizing their learning environment.
- Enhanced communication and collaboration features.
- Accessibility and user-friendliness for all levels of technological proficiency.

5. Design Recommendations

5.1 Dashboard Design

- Create an intuitive and user-friendly dashboard that provides efficient access to course materials.
- Ensure that the dashboard is customizable, allowing users to personalize their learning space.
- Implement a robust notification system for timely updates on new content, announcements, and assignment due dates.

5.2 Content Formats and Customization

- Support a variety of file formats, such as PDFs, videos, and interactive simulations, to cater to different learning preferences.
- Provide customization options, allowing users to personalize their learning experience, including the arrangement of courses and resources.

5.3 Communication and Collaboration

- Implement robust communication tools, including announcements, discussions, and virtual office hours.
- Develop collaboration tools that enhance group work and peer-to-peer communication, fostering a sense of community.

5.4 Accessibility and User-Friendliness

- Prioritize accessibility and user-friendliness, ensuring that the platform accommodates users with varying levels of technological proficiency.

6. Next Steps

6.1 Implementation Plan

- Collaborate with UI designer to create prototypes based on the design recommendations.
- Refine the design through iterative user testing and feedback.

6.2 Usability Testing

- Conduct extensive usability testing with representative user groups to ensure the platform is intuitive, efficient, and user-friendly.

6.3 Continuous Improvement

- Maintain open channels for user feedback and prioritize ongoing improvements based on user suggestions and evolving needs.

6.4 Collaboration with Development Teams

- Work closely with development teams to translate design recommendations into functional features within the platform.
- Ensure seamless integration and performance optimization.

6.5 Ongoing Monitoring

- Continuously monitor user satisfaction, engagement, and performance to identify areas for improvement and optimization within the e-learning platform.

7. Conclusion

This user research provides essential insights for the development of a user-centered e-learning platform. By focusing on user needs and preferences, the platform aims to provide a superior educational experience and ensure easy access to resources.

The success of the platform depends on its ability to address user requirements, providing an efficient, customized, and pleasant learning experience. This project serves as a roadmap for further design and development, keeping the platform aligned with the evolving demands of its user community.

For further information, design details, and development steps, please refer to the additional documents in the project repository.

H. Initial Requirements

Must Have Features:

1. Course progress

- **Description:** enabling learners to monitor their progress by displaying completed and pending lectures and tasks. This feature empowers learners to set goals, celebrate achievements, and stay motivated throughout their learning journey.
- **Vision:** It fosters a sense of accomplishment and accountability among learners. By visualizing their progress, learners are inspired to take ownership of their education, leading to a more structured and fulfilling learning experience.

2. User Dashboard

- **Description:** The user dashboard serves as a centralized hub where learners can access course progress, upcoming tasks, and announcements. Visual representations of achievements and milestones provide learners with a comprehensive overview of their learning journey.
- **Vision:** The user dashboard promotes transparency and accountability. By offering insights into progress and achievements, this feature empowers learners to stay on track and make informed decisions about their studies.

3. Cloud Storage

- **Description:** Cloud storage facilitates seamless access to learning materials from various devices. Learners can effortlessly upload, store, and retrieve files, ensuring their educational resources are easily accessible and organized.

- **Vision:** Cloud storage enhances accessibility and flexibility, enabling learners to engage with content wherever they are. This feature promotes a borderless learning experience, breaking down geographical barriers and accommodating diverse learning styles.

4. Multi-language support ability

- **Description:** we should support multiple languages to allow each student to learn in their language of preferences and change website and application text direction.
- **Vision:** the ease of students.

5. Communication Features

- **Description:** Communication features provide learners with tools to interact with instructors and peers. Real-time messaging, discussion forums, and group chats foster collaborative learning, facilitate knowledge sharing, and strengthen the learning community.
- **Vision:** Communication features create a sense of connectedness among learners. By encouraging active engagement and dialogue, learners can clarify doubts, exchange ideas, and learn from each other, thereby enriching their educational journey.

6. User-Friendly and easy to navigate Interface.

- **Description:** A user-friendly interface ensures that the platform is easy to navigate and understand. Intuitive design, clear labels, and organized layout contribute to a positive user experience, minimizing frustration and enhancing engagement. Easy navigation allows learners to quickly access different sections of the platform. Intuitive menus and clear pathways ensure that learners can find their desired content effortlessly, enhancing usability and reducing frustration.
- **Vision:** A user-friendly interface is paramount for an inclusive learning environment. By catering to learners of various technological backgrounds, this feature promotes accessibility and empowers all users to navigate and interact with the platform effectively. Easy navigation is essential to provide learners with a frictionless journey through the platform. By streamlining access to resources, this feature empowers learners to concentrate on their studies rather than struggling with navigation, ultimately promoting efficient learning.

7. Accessible interface

- **Description:** An Accessible LMS is one that encourages and helps people with disabilities to access the learning material and consume like everyone else with as little hurdles as possible. some main features to enable this are “changing font size”, “contrast changer”, “audio alert”, “hot keys”, “sign language interpreter”
- **Vision:** our vision is to allow all kinds of e-learners to be accommodated and learn without hurdles.

8. Hot Keys/Quick Access to Tools

- **Description:** Quick access to tools offers learners shortcuts to frequently used features, reducing the time spent searching for resources. This feature optimizes efficiency and encourages learners to focus on their studies without unnecessary delays.
- **Vision:** Quick access to tools enhances productivity, allowing learners to devote more time to active learning. By streamlining workflows, this feature enables learners to engage with content and activities more effectively.

9. Labels and Categorisation/Platform Organization

- **Description:** Platform organization involves categorizing content and resources in a structured manner. Clear labels, nested folders, and efficient tagging systems enable learners to find and access materials with ease.
- **Vision:** Platform organization promotes a clutter-free and intuitive learning environment. By reducing information overload and simplifying content discovery, this feature enhances learners' ability to locate and engage with relevant materials.

10. Self Enrollment with invitations or codes

- **Description:** Self-enrollment empowers learners to register for courses independently. This feature grants learner's autonomy, enabling them to choose courses aligned with their interests and learning goals.
- **Vision:** Self-enrollment fosters a sense of ownership over one's learning journey. By allowing learners to explore subjects of personal interest, this feature encourages motivation and enthusiasm for continuous education.

11. Create Courses

- **Description:** The ability to create courses empowers instructors to design and structure educational content. Customizable course creation tools enable educators to tailor materials to the specific needs and preferences of their learners.
- **Vision:** Course creation tools facilitate pedagogical creativity and customization. By empowering instructors to curate engaging and relevant courses, this feature enhances the quality and diversity of learning experiences.

12. Add Material/Reuse material.

- **Description:** The "Add Material" feature allows instructors to upload and share course resources. This feature ensures that learners have access to a variety of content, including readings, videos, assignments, and supplementary materials. An instructor can also reuse old course material they uploaded before.
- **Vision:** The ability to add material enriches the learning journey with diverse resources. By catering to different learning styles and preferences, this feature promotes comprehensive and well-rounded education.

13. Tasks/Assignments

- **Description:** Task submission enables learners to upload assignments and projects for evaluation. Clear guidelines, user-friendly interfaces, and seamless file uploads streamline the submission process.
- **Vision:** Task submission simplifies the assessment cycle for learners and instructors alike. By providing a convenient platform for submitting work, this feature enhances accountability and facilitates timely feedback.

14. Writing/Post Editor page

- **Description:** A special page allowing teachers and students to create posts with the ability to include pics, text, embed YouTube videos, add polls and change fonts.
- **Vision:** giving more customisable to both teacher and student

15. Quiz assignments

- **Description:** allowing teachers to upload quizzes native to the site that allows text, image , multiple options, open ended questions and the choices of automatic grading and manual one.
- **Vision:** Quizzes are a crucial part of education, and a teacher should have the ability to create a course and notify students of it.

16. Mobile App Availability

- **Description:** Mobile app availability ensures that learners can access the platform on their smartphones and tablets. Responsive design and optimized functionality enable on-the-go learning, accommodating busy schedules.
- **Vision:** Mobile app availability expands learning opportunities beyond traditional settings. By enabling learners to engage with content anytime, anywhere, this feature facilitates continuous learning and adapts to modern lifestyles.

17. Fast Performance

- **Description:** Fast performance ensures that the platform responds promptly to user interactions. Swift loading times, seamless navigation, and minimal delays contribute to a frustration-free and efficient learning experience.
- **Vision:** Fast performance is essential for maintaining learner engagement and focus. By minimizing waiting times and interruptions, this feature supports a seamless learning flow and enables learners to maximize their study time.

18. Blog per Course

- **Description:** allowing commenting on each teacher post and to allow students to make their own posts in another tab(blog) in each course.
- **Vision:** allow student interaction and encourage a community to help each other.

Should Have Features:

1. Dark Mode Option

- **Description:** A dark mode option provides an alternative colour scheme that reduces eye strain in low-light environments. This feature offers a visually comfortable experience for learners who prefer darker interfaces.
- **Vision:** A dark mode option enhances user comfort and accessibility. By promoting a more relaxed viewing experience, this feature accommodates different learning environments and supports extended study sessions.

2. YouTube video Integration

- **Description:** Allow teachers to include YouTube embed (iframes in web) to help students through pasting the link into the post.
- **Vision:** Allow teachers to add special resources.

3. SCORM/Xapi/Interoperability Conformance

- **Description:** apply Xapi standards to allow flexibility of data and data sharing between LMS. Those standards are meant to organize your system and processes to help reduce time and data wasted between different students and courses.
- **Vision:** allowing teachers an easier time when creating courses by reusing course materials and allowing sharing of content between different systems.

4. Enhanced Search Tools

- **Description:** Enhanced search tools enable learners to locate specific content quickly. Robust search functionalities, advanced filters, and accurate keyword recognition enhance content discovery and retrieval.
- **Vision:** Enhanced search tools save time and effort by enabling efficient content exploration. By facilitating easy access to resources, this feature supports focused learning and reduces frustration caused by information overload.

5. Customizable Settings

- **Description:** Customizable settings empower learners to personalize their platform experience. Adjustable preferences for themes, layout, notifications, and language ensure that the platform adapts to individual needs.
- **Vision:** Customizable settings cater to diverse learning preferences. By allowing learners to tailor their environment, this feature enhances comfort and satisfaction, fostering a sense of ownership over the learning journey.

6. Direct File Downloads

- **Description:** Direct file downloads allow learners to easily download course materials to their devices. This feature eliminates extra steps and provides convenient offline access to resources.
- **Vision:** Direct file downloads enhance resource accessibility. By enabling learners to save materials for offline viewing, this feature ensures uninterrupted learning even in areas with limited or unstable internet connectivity.

7. Tutorials

- **Description:** use tools like “scribe” to create video tutorials on how to use different website features.
- **Vision:** help students get used to the system and familiarize themselves with it quickly.

8. Improved Notifications

- **Description:** Improved notification systems ensure that learners receive timely updates about assignments, deadlines, and announcements. Customizable preferences and reliable delivery enhance communication and task management.
- **Vision:** Improved notifications keep learners informed and organized. By reducing the risk of missing important information, this feature promotes effective time management and supports proactive learning engagement.

9. Efficient File Management

- **Description:** Efficient file management tools enable learners and instructors to organize, upload, and share resources seamlessly. Intuitive file structures, version control, and easy document management enhance content accessibility.

- **Vision:** Efficient file management simplifies resource sharing and access. By providing a structured and user-friendly file repository, this feature optimizes content distribution and contributes to a well-structured learning environment.

10. Integrated External Resources

- **Description:** Integration with external resources allows learners to access additional learning materials from reputable sources. Links to relevant websites, articles, and multimedia enrich the learning experience with diverse perspectives.
- **Vision:** Integrated external resources broaden the scope of learning. By connecting learners to a wealth of supplementary materials, this feature encourages exploration and critical thinking, enhancing the depth and breadth of knowledge.

11. Assessment Tools/Teacher Dashboard

- **Description:** Assessment tools enable instructors to design and administer quizzes, assignments, and assessments within the platform. Automated grading, feedback mechanisms, and performance analytics streamline the evaluation process.
- **Vision:** Assessment tools facilitate accurate and timely evaluation. By providing instructors with efficient grading and learners with insightful feedback, this feature supports continuous improvement and empowers learners to track their progress.

12. Feedback Mechanisms

- **Description:** Feedback mechanisms enable learners to provide input on courses, content, and the platform itself. Surveys, ratings, and open forums foster learner engagement and empower them to shape their learning environment.
- **Vision:** Feedback mechanisms promote a learner-centred approach. By involving learners in platform improvements and content refinement, this feature enhances user satisfaction and contributes to a continuously evolving learning ecosystem.

13. In-depth Analytics

- **Description:** In-depth analytics provide detailed insights into learner progress, engagement, and performance. Robust data visualization and reporting tools offer instructors and learners a comprehensive view of their learning journey.
- **Vision:** In-depth analytics facilitate informed decision-making. By offering data-driven insights, this feature empowers instructors to tailor interventions, optimize instructional strategies, and personalize learning experiences.

Nice to Have Features:

1. Live Meeting Functionality

- **Description:** Live meeting functionality enables real-time virtual interactions among learners, instructors, and peers. Integrated video conferencing, chat, and collaborative tools facilitate synchronous learning experiences.
- **Vision:** Live meeting functionality enriches collaborative learning. By simulating in-person interactions, this feature fosters dynamic discussions, immediate feedback, and spontaneous knowledge sharing, enhancing engagement and interactivity.

2. Personalized Learning Paths

- **Description:** Personalized learning paths allow learners to customize their curriculum based on their goals, preferences, and skill levels. Adaptive content recommendations and learning roadmaps optimize individual learning trajectories.
- **Vision:** Personalized learning paths cater to diverse learning needs. By tailoring content and pacing to individual requirements, this feature supports self-directed learning and fosters a sense of ownership over the educational journey.

3. Collaborative Features/ Student teams and shared scores

- **Description:** Collaborative features facilitate group work and peer interaction. Shared workspaces, collaborative editing, and group discussions support cooperative learning, enabling learners to collaborate on projects and assignments.
- **Vision:** Collaborative features foster teamwork and knowledge exchange. By encouraging collaborative problem-solving and creative thinking, this feature prepares learners for real-world collaborative scenarios and enhances their interpersonal skills.

I. Use Cases Brief

For our use cases we opted to make a list of user actions and their description which were used to write the use case diagram and use case descriptions, this appendix entry has the some of the initial use case list, for the developed version with the table descriptions please refer to the **Appendix Folder > Analysis Chapter Documents > Use Case Descriptions/Diagram**

1. User Logins

- User clicks on the "Login" button.
- User enters their registered email and password or chooses to log in with Google/Facebook accounts.
- System validates the entered credentials.
- If valid:
 - Users gain access to their account and the platform.
- If invalid:
 - System displays an error message.
 - User has the option to reset the password or contact support.

2. User Resets Password

- User clicks on the "Forgot Password" link.
- Users are prompted to enter their registered email address.
- System verifies the email address's existence in the database.
- If the email is valid:
 - System sends a password reset link to the user's email.
 - User receives the email and clicks on the reset link.
 - User is redirected to a page where they can create a new password.
 - User enters a new password and confirms it.

- The system updates the user's password.
- Users can now log in with the new password.
- If the email is not valid:
 - System displays an error message.
 - Users are prompted to re-enter their email address.

3. Student Enroll in Course

- Students log into their account.
- Students navigate to the course catalogue or search feature.
- Students select a course they want to enroll in.
- System adds the course to the user's enrolled courses.
- If the course is not full:
 - Students can now access the course content.
- If the course is full (maximum enrollment reached):
 - System displays a message indicating that the course is full.
 - Students can join a waiting list if available or choose another course.

4. Teacher Adds Assignment

- Teacher logs into their account.
- Teacher accesses the specific course where they are the instructor.
- Teacher navigates to the assignment creation section.
- Teacher provides assignment details, including title, description, and due date.
- Teacher sets assignment parameters, such as maximum points.
- Teacher creates the assignment.
- The system notifies enrolled students about the new assignment.

5. Student Submits Assignment

- Students log into their account.
- Students access the course where they have an assignment.
- Student navigates to the assignment submission section.
- Students upload their assignment file or enters text.
- Student submits the assignment.
- The system records the submission and notifies the Teacher.

6. Student Labels and Categorization/Platform Organization

- System must organize content with clear labels, categories, nested folders, and efficient tagging systems for easy resource discovery.

7. Teacher Creates Enrollment Codes

- Teacher logs into their account.
- Teacher navigates to the course management section.

- Teacher generates an enrollment code for the course they want to offer.
- Teacher shares the enrollment code with potential students through email, messages, or the platform.

8. Teacher Adds/Reuses Material

- Teacher logs into their account.
- Teacher navigates to the course materials section.
- Teacher uploads course materials (readings, videos, assignments) or reuses previously uploaded materials.

9. Teacher Adds Quiz

- Teacher logs into their account.
- Teacher accesses the course where they want to create a quiz.
- Teacher creates a new quiz with questions, including text, images, multiple-choice, and open-ended questions.
- Teacher configures grading options (automatic or manual).
- Teacher configures the time for the quiz.
- Teacher publishes the quiz for students.
- The system notifies enrolled students about the new quiz.

10. Student Submits Quiz

- Student logs into their account.
- Student accesses the course with a quiz assignment.
- Student takes the quiz, answering questions.
- Student submits the quiz.
- System grades the quiz automatically (if configured) or awaits manual grading by the instructor.
- The system records the submission and notifies the Teacher.

11. Assessment Tools/Teacher Dashboard

- System must offer assessment tools for instructors to design and administer quizzes, assignments, and assessments.
- System must provide automated grading, feedback mechanisms, course modifications, and course analytics to teachers.

12. Student Downloads Materials

- Students logs into their account.
- Students accesses the course for which they want to download materials.
- Students navigates to the "Course Materials" or "Resources" section of the course.
- Students locates the specific material they want to download (e.g., a document, video, presentation).
- Students clicks on the material to open it.
- Within the material view, user finds a "Download" or "Save" button/icon.
- Students clicks on the "Download" button/icon.

- The system generates the download file.
- Students selects the download location and confirms the download.
- The system initiates the download process.

13. Admin Manages Courses

- The Admin can view a list of all courses offered on the platform.
- The Admin can modify or delete courses.
- The Admin can assign or change instructors for courses.
- The Admin can monitor course enrollment and view enrollment statistics.
- The Admin can set course enrollment limits.
- The Admin can archive or temporarily hide courses.
- The Admin can review and approve/disapprove course content created by teachers.

14. Admin Manages Roles and Permissions

- The admin can define and manage user roles and permissions.
- The admin can create custom user roles with specific permissions.
- The admin can assign roles to users or groups of users.
- The admin can revoke or modify permissions for specific users or roles.
- The admin can track changes to roles and permissions.

15. Admin Manages Reports and Analytics

- The Admin can access comprehensive reports and analytics on user activity, course engagement, and platform usage.
- The admin can use analytics to identify trends, areas for improvement, and potential issues.

J. Data Standard

1. Verbs id-enum:

Color coding for validation: **user**, **admin**, **privileged user**, **server**

Table 8 Verbs Enums

Verb Enum/Action	Description
sent-partial-course-data-successfully	server
request-denied	server refuses a request and sends more info in the context object.
get-privileges-list	
sent-system-privileges-list	server
create-user	Used when creating a new account by a guest, not an admin.

<code>user-created-successfully</code>	server creates a new user and sends their info
<code>update-user</code>	
<code>user-updated-successfully</code>	server
<code>user-deleted-successfully</code>	server
<code>log-into-account</code>	The user attempts to log in
<code>admin-create-course</code>	admin
<code>course-created-successfully</code>	server
<code>admin-update-course</code>	admin
<code>course-updated-successfully</code>	server
<code>admin-delete-course</code>	admin
<code>course-deleted-successfully</code>	server
<code>admin-create-user</code>	admin
<code>admin-update-user</code>	admin
<code>admin-delete-user</code>	admin
<code>admin-request-course-code</code>	admin
<code>enroll-in-course</code>	
<code>user-enrolled-successfully</code>	server
<code>user-get-courses</code>	
<code>sent-courses-data-successfully</code>	server
<code>user-get-users</code>	
<code>sent-users-data-successfully</code>	server
<code>user-get-posts</code>	
<code>sent-posts-data-successfully</code>	server
<code>user-get-comments</code>	
<code>sent-comments-data-successfully</code>	server
<code>user-get-materials</code>	
<code>sent-materials-data-successfully</code>	server

privileged-user-posts-in-course	privileged user
post-created-successfully	server
privileged-user-update-post	privileged user
post-updated-successfully	server
privileged-user-delete-post	privileged user
post-deleted-successfully	server
privileged-user-comments-on-post	privileged user
comment-created-successfully	server
privileged-user-updates-comment	privileged user
comment-updated-successfully	server
privileged-user-deleted-comment	privileged user
comment-deleted-successfully	server
get-roles-list-in-course	
get-privileges-list-for-user	
privileged-user-create-quiz-in-course	privileged user
quiz-created-successfully	server
access-quiz-in-course	
submit-quiz-in-course	
quiz-submitted-successfully	server
privileged-user-creates-role-in-course	privileged user
role-created-successfully	server
privileged-user-updates-role-in-course	privileged user
role-updates-successfully	server
privileged-user-delete-role-in-course	privileged user
role-deleted-successfully	server
privileged-user-assigns-role-in-course	privileged user
role-assigned-successfully	server

2. Objects Enum:

Table 9 Objects Enums

Object Type	Meaning
Agent	A user
Activity	A Course/Post/Comment/Etc
Group	A group of objects

3. Privileges Enum:

Table 10 Privileges Enums

Privilege	code	Description
create normal post	1	
Edit lower-level posts.	2	Edit posts of use with the same and lower-level roles
Delete lower-level posts.	3	Delete posts of users with the same and lower-level roles
Create poll	4	
Create quiz	5	
Comment on post	6	
Delete lower-level comments	7	Delete comments of users with the same and lower-level roles
Assign roles to lower-level users	8	Assign equal or lower level roles to users with lower level roles

Timestamp:

All durations should follow the ISO standard and they will be mostly used for Quizzes and assignments

Table 11 Timestamp Standard

Example	Explanation
PT4H35M59.14S	Four hours, thirty five minutes and 59.14 seconds.

PT16559.14S	The same time period as above represented in seconds. (Note: if the time period in question contained a leap second, this conversion would be inaccurate)
P3Y1M29DT4H35M59.14S	A Duration also including years, months and days.
P3Y	Approximately three years e.g. completion of a qualification.
P4W	Four weeks. Note that weeks cannot be combined with other time periods. 'P4W1D' is not valid.

4. Statement Structure:

Statements are basically the main format for request bodies and responses and follow all the standards in this file.

Each statement have 4 main objects:

1. Actor, which is the user who created the statement.
2. Verb, What action did the user do
3. Object, the item that was created or affected by this statement and all metadata
4. Context, which hosts all miscellaneous data

```
{
  "id": "fd41c918-b88b-4b20-a0a5-a4c32391aaa0",
  "timestamp": "2015-11-18T12:17:00+00:00",
  "actor": {
    "name": "John Doe",
    "id": "5942f46c-50cf-4bbe-b447-fadd1be1c840"
  },
  "verb": {
    "id-enum": "verbs-took-exam",
    "display": {
      "en-US": "took an exam"
    }
  },
  "object": {
    "id": "5942f46c-50cf-4bbe-b447-fadd1be1c840",
    "objectType": "Activity",
    "definition": {
      "id": "5942f46c-50cf-4bbe-b447-fadd1be1c840"
    }
  }
}
```

```
        "name":{  
            "en-US":"simple" CBT course"  
        },  
        "description":{  
            "en-US":"A fictitious example CBT course."  
        }  
    },  
    "Context":{  
        "result":{  
            "score":{  
                "scaled":"0.95"  
            },  
            "success":"true",  
            "completion":"true",  
            "duration": "PT12M34.15S"  
        }  
    }  
}
```

K. End Points List

For the full transcript please refer to the Appendix folder attached to this document, a high-quality PDF of the Initial Endpoints and their request/response in JSON exists there.

H. Postman Collection

For the full transcript please refer to the Appendix folder attached to this document, the postman collection in JSON exists there.

I. Functionality test cases

For the full transcript please refer to the Appendix folder attached to this document, a high-quality PDF of the Manual Functionality test cases exists there.

Background:

Hybrid learning has become increasingly important since the COVID-19 pandemic began in 2020. To meet this new demand in the market, numerous platforms and applications have emerged to cater to educational institutions, individual trainers, and software companies that create platforms for specific fields of education. Each platform has its unique advantages and disadvantages, but most suffer from issues such as low usability, difficult maintenance, and a focus on specific types of education. Our team recognizes the need for a better platform and has decided to develop one to meet the needs of learners and educators.

Competitors:

In this section, we will discuss the advantages and disadvantages of some of the most popular e-learning platforms currently available. These platforms include:

- **Blackboard:**

Blackboard is a popular e-learning platform that offers a variety of features, including communication tools, course management, and content management. Its advantages include its flexibility and its ability to integrate with various other educational tools. However, its disadvantages include its complexity and the steep learning curve required to use it effectively.

- **Acadox:**

Acadox is a learning management system that offers features such as course management, assignment submission, and student attendance tracking. Its advantages include its ease of use and its flexibility. However, its disadvantages include its limited customization options and its lack of advanced features.

- **Thinqi:**

Thinqi is a cloud-based e-learning platform that offers features such as course creation, collaboration tools, and learner management. Its advantages include its user-friendly interface and its ability to be customized to fit the needs of specific users. However, its disadvantages include its lack of advanced features and its limited reporting capabilities.

- **Google Classroom:**

Google Classroom is a free e-learning platform that offers features such as course management, assignment creation, and student progress tracking. Its advantages include its ease of use and its integration with other Google tools.

However, its disadvantages include its limited customization options and its lack of advanced features.

■ **Ain Shams:**

Ain Shams is a popular e-learning platform used by Ain shams university . Its advantages include its ease of use and its flexibility. However, its disadvantages include its limited customization options and its lack of advanced features.

Vision:

Our team's vision is to create an e-learning platform that provides a perfect learning environment for students, teaching staff, and management. We aim to create a platform that is easy to use, customizable, and provides all the necessary tools for learners and educators to succeed.

For students, we envision a platform that acts as their personal repository containing all their studying material and all the tools they need to succeed in their specific field of study.

For educators, we envision a platform that provides a seamless environment for communication, monitoring, connecting with students, and delivering personalized education. Our platform will allow them to create their personalized classroom with every tool they need to provide the best possible education for their students.

For management, we aim to provide an analytical platform that enables them to review and evaluate their teaching staff and courses, providing a data-driven approach to decision-making.

Proposed solutions:

Our team aims to create a platform that provides a better user experience and better maintenance and monitoring for educators. We will focus on addressing the shortcomings of other mainstream platforms.

■ **The key features of our platform will include:**

- Acting as a material repository for students
- Conducting quizzes and tracking grades
- Providing easy-to-use tools for educators to communicate with students and track their progress.

- Advanced analytics and reporting capabilities that provide insight into student performance, course effectiveness, and learning outcomes.
- Support for mobile learning, allowing students to access content and interact with their instructors on their smartphones and tablets.
- Accessibility features, such as closed captioning, text-to-speech, and other assistive technologies to ensure that all learners have equal access to the content.
- Personalized learning paths and adaptive assessments that provide tailored learning experiences based on individual student needs and abilities.

Leading principals:

■ User-centric design:

Our team is committed to creating a platform that is intuitive, easy to use, and meets the needs of our users. We will prioritize user feedback throughout the development process to ensure that our platform is tailored to the needs of modern learners and educators.

■ Analytics and reporting:

Our platform will provide advanced analytics and reporting capabilities that provide insight into student performance, course effectiveness, and learning outcomes. This will enable educators and management to make data-driven decisions and continuously improve the learning experience.

Swot Analysis:

■ Strengths:

- User-centric design, with a focus on providing an intuitive and easy-to-use platform for learners, educators, and management.
- Advanced analytics and reporting capabilities that enable data-driven decision-making.
- Support for mobile learning and accessibility features, ensuring that all learners have equal access to the content.
- Personalized learning paths and adaptive assessments, providing tailored learning experiences for individual student needs and abilities.

■ Weaknesses:

- Lack of brand recognition and reputation, which may make it challenging to attract users in a crowded market.
- The development of advanced features and analytics capabilities may require a significant investment of resources.
- The platform may require ongoing maintenance and updates to ensure that it remains relevant and up-to-date.

■ Opportunities:

- The growing demand for e-learning platforms due to the COVID-19 pandemic and the increasing importance of online learning.
- The potential to partner with educational institutions and organizations to promote the platform and attract users.
- The potential to expand the platform to include additional features or support for other types of education.

■ Threats:

- Intense competition from established e-learning platforms that have a strong brand and reputation.
- The risk of security breaches or data loss, which could undermine user confidence in the platform.
- Regulatory and compliance issues that may arise when handling sensitive student data.

Conclusion:

In conclusion, our team aims to develop an e-learning platform that provides a seamless experience for learners, educators, and management. By addressing the shortcomings of current platforms and focusing on user feedback and continuous improvement, we believe that we can create a platform that meets the needs of modern education. We look forward to bringing our vision to life and making a positive impact on the world of education.

BUSINESS PLAN

Academia

DATE PREPARED

01/11/2023

CONTACT

Contact Name

Contact Email Address

Phone Number

Street Address

City, State, and Zip

webaddress.com

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EXECUTIVE SUMMARY

In response to the growing need for better LMS platforms, our project's main mission is to create a user-friendly and highly customizable e-learning platform that benefits students, educators, and administrators alike. From students-side, the proposed e-learning system can serve as a one-stop repository for all their study materials and tools. This system is designed to make their learning journey as smooth as possible. From educators-side, the system can provide a seamless teaching environment, fostering communication and personalization. Finally, administrators are able to gain analytical insights for informed decision-making.

The proposed e-learning system covers core areas presented in other e-learning systems. Also, it ensures accessibility and usability for students, efficient course management for teachers, and streamlined data retrieval for administrators. Other complex features like AI assistance or video conferencing are out-of-scope due to time and resource constraints.

We are adopting an agile approach, allowing us to adapt as we go. This report includes chapters on market analysis, project details, system design, testing, results, and future possibilities. You can also find additional reports in the appendices for a deeper dive into our project journey.

Keywords: Learning Management System, LMS, Course Management, XAPI.

COMPANY OVERVIEW

BACKGROUND

We are Information Systems students and we've experienced different educational platforms and faced some problems while using them, hearing from our friends and teachers the problems they faced, so we decided to solve these problems throughout our graduation project.

Hybrid learning has become increasingly important since the COVID-19 pandemic began in 2020. To meet this new demand in the market, numerous platforms and applications have emerged to cater to educational institutions, individual trainers, and software companies that create platforms for specific fields of education. Each platform has unique advantages and disadvantages, but most suffer from issues such as low usability, difficult maintenance, and a focus on specific types of education. Our team recognizes the need for a better platform and has decided to develop one to meet the needs of learners and educators.

OBJECTIVES

Our team's objective and vision is to create an e-learning platform that provides a perfect learning environment for students, teaching staff, and management. We aim to create a platform that is easy to use, and customizable and provides all the necessary tools for learners and educators to succeed.

- For students, we envision a platform that acts as their personal repository containing all their studying material and all the tools they need to succeed in their specific field of study.
- For educators, we envision a platform that provides a seamless environment for communication, monitoring, connecting with students, and delivering personalized education. Our platform will allow them to create their personalized classroom with every tool they need to provide the best possible education for their students.
- For management, we aim to provide an analytical platform that enables them to review and evaluate their teaching staff and courses, providing a data-driven approach to decision-making.

TEAM

Marwan:

- Coordination of Work.
- Documentation writing and maintenance.
- System Features and Requirements.
- System Specification.
- Database System.
- Backend Servers.
- Testing.

Abd-Elrahman:

- Survey Creation and Its Analysis.
- Documentation Editing.
- System Features and Requirements.
- UX research.
- UI Frames.
- GP Presentation.

Ahmed:

- UseCase Descriptions.
- BPMN Diagrams.
- Class and ERD Diagrams.
- Mobile Application.
- Backend Server

David:

- Functional and non-functional requirements,
- UseCase Descriptions.
- BPMN Diagrams.
- Sequence Diagrams.
- Mobile Application.

Mohamed:

- Business plan.
- UseCase Diagrams.
- FrontEnd Application.
- Testing.

TARGET MARKET

Our primary target market includes higher education institutions, with a specific focus on Cairo University, other Egyptian universities, and the subsequent expansion to universities across the Arab world.

1. Cairo University:

Established in 1908, Cairo University is a leading educational institution in Egypt, with a diverse student population and a wide range of academic disciplines.

Total student enrollment: Approximately 250,000 students.

Faculty and administrative staff: Over 20,000 members.

2. Other Egyptian Universities:

Egypt has a robust higher education sector with numerous universities, both public and private.

Estimated total student enrollment in Egyptian universities: Over 3 million.

Faculty and administrative staff across all universities: Over 200,000.

3. Arab World Universities (Future Expansion):

The Arab world has a rich and diverse educational landscape, including universities in countries like Saudi Arabia, the United Arab Emirates, Jordan, and more.

Estimated total student enrollment in Arab world universities: Over 10 million.

Faculty and administrative staff across Arab world universities: Over 1 million.

MARKET SIZE

1. Initial Target - Cairo University:

Cairo University represents an initial user base of approximately 270,000 individuals, including students, faculty, and administrators.

2. Egyptian Universities (Phase 1):

The total estimated user base in Phase 1 includes over 3.2 million individuals, covering students, faculty, and administrative staff across various Egyptian universities.

3. Arab World Universities (Future Phases):

The future expansion to the Arab world anticipates tapping into a vast user base of over 11 million individuals, encompassing students, faculty, and administrative staff.

MARKETING STRATEGY

1. Build an Online Presence:

a. Website:

Landing Page:

- Create a captivating landing page that highlights the key features and benefits of your LMS.
- Include an option for visitors to sign up for newsletters or updates.

Blog Section:

- Start a blog section on your website to share insights about e-learning trends, challenges in education, and sneak peeks into your LMS development process.

b. Social Media:

Targeted Social Media Marketing:

- Utilize platforms like Facebook, Twitter, and LinkedIn for targeted advertising to reach administrators, faculty, and students in Egyptian universities.
- Create engaging content in Arabic, focusing on the benefits and unique features of your LMS.

Teasers and Sneak Peeks:

- Share regular teasers and sneak peeks of the LMS design on social media platforms.
- Engage with your audience by asking for feedback on specific design elements.

Behind-the-Scenes:

- Share behind-the-scenes content, such as screenshots, design sketches, and short videos of the development process.
- Use relevant hashtags to increase visibility.

2. Engage with Your Audience:

a. Surveys and Feedback:

- Conduct surveys to gather input from your target audience about their expectations from an LMS.
- Ask for feedback on specific design aspects, ensuring that user preferences are considered during development.

3. Content Marketing:

a. Educational Content:

- Create content related to e-learning and the benefits of modern LMS systems.

- Develop articles, infographics, and short videos explaining how your LMS design addresses specific challenges in education.

b. Arabic Content Creation:

- Develop a blog on your website that publishes informative articles and case studies in Arabic, showcasing the effectiveness of your LMS.
- Create video content in Arabic that demonstrates the features and benefits of the platform.

4. Networking and Partnerships:

a. Industry Events and Conferences:

- Attend virtual industry events and conferences related to education technology.
- Participate in panel discussions or workshops to share insights into the importance of design in LMS.

b. Collaborate with Educational Influencers:

- Identify and reach out to influencers in the educational technology space.
- Collaborate with them to share their thoughts on the significance of a well-designed LMS.

c. Collaborate with Educational Institutions:

- Establish partnerships with key educational institutions in Egypt for joint promotional activities.
- Offer special incentives for early adopters among these institutions.

d. Educational Organizations and Associations:

- Join and participate in local educational associations and events to build credibility.
- Sponsor or participate in conferences and workshops related to education and technology.

5. Email Marketing:

a. Newsletter Campaigns:

- Start building an email list by encouraging visitors to subscribe to newsletters on your website.
- Send regular updates on the progress of your LMS design, feature highlights, and anticipated launch dates.

b. Exclusive Access:

- Offer exclusive access or early demos to subscribers as a way of rewarding their early interest and building a sense of exclusivity.

6. Create Anticipation:

a. Countdowns and Timelines:

- Implement countdowns and timelines on your website and social media, creating a sense of anticipation for the upcoming LMS launch.

b. Beta Testing Opportunities:

- Announce opportunities for educational institutions to participate in beta testing.
- Highlight the benefits of being early adopters and contributors to the refinement of the LMS.

COMPETITION

In this section, we will discuss the advantages and disadvantages of some of the most popular e-learning platforms currently available. For the full competitors' Analysis please refer to the index. These platforms include:

- **Blackboard:**

Blackboard is a very popular e-learning platform that offers a variety of features, including communication tools, course management, and content management. Its advantages include its flexibility and its ability to integrate with various other educational tools. It is extremely versatile due to its many features like video streaming and a mobile app available too. However, its disadvantages include its complexity and the steep learning curve required to use it effectively due to how complicated the interface may be to inexperienced students alongside connection issues that may happen in areas with poor internet connections.

- **Acadox:**

Acadox is a learning management system that offers features such as course management, assignment submission, and student attendance tracking. Its advantages include its high ease of use and its flexibility. However, its disadvantages include its limited customization options, lack of advanced features and proper marketing with big institutions.

- **Thinqi:**

Thinqi is a cloud-based e-learning platform that offers features such as course creation, collaboration tools, and learner management. Its advantages include its user-friendly interface and its ability to be customized to fit the needs of specific users. However, its disadvantages include its lack of advanced features and its limited reporting capabilities.

- **Google Classroom:**

Google Classroom is a free e-learning platform that offers features such as course management, assignment creation, and student progress tracking. Its advantages include its ease of use and its integration with other Google tools. However, its disadvantages include its limited customisation options and its lack of advanced features though those disadvantages can be seen as targeting a specific customer profile who needs a simple and lightweight educational platform.

- **Ain Shams:**

Ain Shams is a popular e-learning platform used by Ain shams University. Its advantages include its ease of use and its flexibility. However, its disadvantages include its limited customization options and its lack of advanced features.

SERVICE OFFERINGS

SERVICE

Our team aims to create a platform that provides a better user experience, better maintenance and monitoring for educators. We will focus on addressing the shortcomings of other mainstream platforms.

The key features:

- Acting as a material repository for students
- Conducting quizzes and tracking grades
- Providing easy-to-use tools for educators to communicate with students and track their progress.
- Advanced analytics and reporting capabilities that provide insight into student performance, course effectiveness, and learning outcomes.
- Support for mobile learning, allowing students to access content and interact with their instructors on their smartphones and tablets.
- Accessibility features, such as closed captioning, text-to-speech, and other assistive technologies to ensure that all learners have equal access to the content.
- Personalized learning paths and adaptive assessments that provide tailored learning experiences based on individual student needs and abilities.

Leading principals:

- **User-centric design:**

Our team is committed to creating a platform that is intuitive, easy to use, and meets the needs of our users. We will prioritize user feedback throughout the development process to ensure that our platform is tailored to the needs of modern learners and educators.

- **Analytics and reporting:**

Our platform will provide advanced analytics and reporting capabilities that provide insight into student performance, course effectiveness, and learning outcomes. This will enable educators and management to make data-driven decisions and continuously improve the learning experience.

Objective :

Compare end to end learning experience in E-learning platforms

	1. Blackboard	2. Moodle	3. Acadox	4. Google Classroom
Product	A traditional LMS focused on meeting institutional needs. It offers extensive customization options, robust analytics, and communication tools.	An open-source LMS, is highly customizable and community-driven. It places emphasis on collaboration, self-directed learning, and support for diverse learning environments.	Acadox provides an integrated platform for educational institutions, aiming to digitize administrative tasks and enhance efficiency. It supports features like course organization, attendance tracking, and file sharing.	Google Classroom, integrated with G Suite, offers a cloud-based platform with user-friendly interfaces and seamless integration with Google products. It emphasizes simplicity, collaborative features, and efficient class management.
Popularity	• High user adoption	• Widely used	• Moderate user adoption	• Widely used
Main Features	- Course management and delivery - Collaboration and communication tools - Assessment and assignment management - Mobile app for on-the-go access	- Course management and delivery - Collaboration and communication tools - Grading and feedback management - Mobile app for seamless access	- Course management and administrative tasks digitization - Easy access to course materials and resources - Efficient attendance tracking and management	- Course creation, management, and delivery - Real-time collaboration and communication - Mobile app for easy access and engagement
Unique Features	- Extensive customization and integrations - Collaborative learning features	- Open-source nature allows for customization and community-driven development - Integration with third-party plugins and tools	- Integration with other educational tools and systems - Automated document management	- Integration with Google Drive, Docs, and other G Suite services - Integration with Google Forms for assessments and quizzes
Product Strengths	- Established reputation as a traditional LMS - Robust analytics and reporting capabilities - Experience in serving diverse educational institutions	- Supportive of diverse learning environments - High user satisfaction ratings	- Integrated platform for educational institutions - Streamlined user experience with a focus on efficiency - Mobile app for convenient usage	- Seamless integration with G Suite and popular Google products - User-friendly interface and ease of use - High user satisfaction ratings
Product Weakness	- User interface may be less intuitive for some users - May require additional training for administrators and instructors - Average rating indicates room for improvement	- User interface may be less intuitive for some users - Customization may require technical expertise	- Limited awareness and market penetration compared to competitors - Average rating indicates room for improvement	- Limited customization options compared to other competitors - Reliance on Google ecosystem may limit integration with other tools
Occasional issues	- Occasional login issues on the mobile app - Grading calculation issue in certain scenarios	- User interface may be less intuitive for some users - Customization may require technical expertise	- Limited awareness and market penetration compared to competitors - Average rating indicates room for improvement	- Limited customization options compared to other competitors - Reliance on Google ecosystem may limit integration with other tools
What users Like	- Customization options	- Flexibility and customization	- Streamlined administrative tasks	- Integration with Google services and ease of use
What users Dislike	- User interface can be complex	- Technical expertise required for customization	- Limited awareness and user base	- Limited customization options

Must Have Features:

1. Course progress

- **Description:** enabling learners to monitor their progress by displaying completed and pending lectures and tasks. This feature empowers learners to set goals, celebrate achievements, and stay motivated throughout their learning journey.
- **Vision:** It fosters a sense of accomplishment and accountability among learners. By visualizing their progress, learners are inspired to take ownership of their education, leading to a more structured and fulfilling learning experience.

2. User Dashboard

- **Description:** The user dashboard serves as a centralized hub where learners can access course progress, upcoming tasks, and announcements. Visual representations of achievements and milestones provide learners with a comprehensive overview of their learning journey.
- **Vision:** The user dashboard promotes transparency and accountability. By offering insights into progress and achievements, this feature empowers learners to stay on track and make informed decisions about their studies.

3. Cloud Storage

- **Description:** Cloud storage facilitates seamless access to learning materials from various devices. Learners can effortlessly upload, store, and retrieve files, ensuring their educational resources are easily accessible and organized.
- **Vision:** Cloud storage enhances accessibility and flexibility, enabling learners to engage with content wherever they are. This feature promotes a borderless learning experience, breaking down geographical barriers and accommodating diverse learning styles.

4. Multi-language support ability

- **Description:** we should support multiple languages to allow each student to learn in their language of preferences and change website and application text direction.
- **Vision:** the ease of students.

5. Communication Features

- **Description:** Communication features provide learners with tools to interact with instructors and peers. Real-time messaging, discussion forums, and group chats foster collaborative learning, facilitate knowledge sharing, and strengthen the learning community.
- **Vision:** Communication features create a sense of connectedness among learners. By encouraging active engagement and dialogue, learners can clarify doubts, exchange ideas, and learn from each other, thereby enriching their educational journey.

6. User-Friendly and easy to navigate Interface

- **Description:** A user-friendly interface ensures that the platform is easy to navigate and understand. Intuitive design, clear labels, and organized layout contribute to a positive user experience, minimizing frustration and enhancing engagement. Easy navigation allows learners to quickly access different sections of the platform. Intuitive menus and clear pathways ensure that learners can find their desired content effortlessly, enhancing usability and reducing frustration.
- **Vision:** A user-friendly interface is paramount for an inclusive learning environment. By catering to learners of various technological backgrounds, this feature promotes accessibility and empowers all users to navigate and interact with the platform effectively. Easy navigation is essential to provide learners with a frictionless journey through the platform. By streamlining access to resources, this feature empowers learners to concentrate on their studies rather than struggling with navigation, ultimately promoting efficient learning.

7. Accessible interface

- **Description:** An Accessible LMS is one that encourages and helps people with disabilities to access the learning material and consume like everyone else with as little hurdles as possible. Some main features to enable this are "changing font size", "contrast changer", "audio alert", "hot keys", "sign language interpreter"
- **Vision:** Our vision is to allow all kinds of e-learners to be accommodated and learn without hurdles.

8. Hot Keys/Quick Access to Tools

- **Description:** Quick access to tools offers learners shortcuts to frequently used features, reducing the time spent searching for resources. This feature optimizes efficiency and encourages learners to focus on their studies without unnecessary delays.
- **Vision:** Quick access to tools enhances productivity, allowing learners to devote more time to active learning. By streamlining workflows, this feature enables learners to engage with content and activities more effectively.

9. Labels and Categorisation/Platform Organization

- **Description:** Platform organization involves categorizing content and resources in a structured manner. Clear labels, nested folders, and efficient tagging systems enable learners to find and access materials with ease.
- **Vision:** Platform organization promotes a clutter-free and intuitive learning environment. By reducing information overload and simplifying content discovery, this feature enhances learners' ability to locate and engage with relevant materials.

10. Self Enrollment with invitations or codes

- **Description:** Self-enrollment empowers learners to register for courses independently. This feature grants learner's autonomy, enabling them to choose courses aligned with their interests and learning goals.

- **Vision:** Self-enrollment fosters a sense of ownership over one's learning journey. By allowing learners to explore subjects of personal interest, this feature encourages motivation and enthusiasm for continuous education.

11. Create Courses

- **Description:** The ability to create courses empowers instructors to design and structure educational content. Customizable course creation tools enable educators to tailor materials to the specific needs and preferences of their learners.
- **Vision:** Course creation tools facilitate pedagogical creativity and customization. By empowering instructors to curate engaging and relevant courses, this feature enhances the quality and diversity of learning experiences.

12. Add Material/Reuse material

- **Description:** The "Add Material" feature allows instructors to upload and share course resources. This feature ensures that learners have access to a variety of content, including readings, videos, assignments, and supplementary materials. An instructor can also reuse old course material they uploaded before.
- **Vision:** The ability to add material enriches the learning journey with diverse resources. By catering to different learning styles and preferences, this feature promotes comprehensive and well-rounded education.

13. Tasks/Assignments

- **Description:** Task submission enables learners to upload assignments and projects for evaluation. Clear guidelines, user-friendly interfaces, and seamless file uploads streamline the submission process.
- **Vision:** Task submission simplifies the assessment cycle for learners and instructors alike. By providing a convenient platform for submitting work, this feature enhances accountability and facilitates timely feedback.

14. Writing/Post Editor page

- **Description:** a special page allowing teachers and students to create posts with the ability to include pics, text, embed youtube videos, add polls and change fonts.
- **Vision:** giving more customisable to both teacher and student

15. Quiz assignments

- **Description:** allowing teachers to upload quizzes native to the site that allows text, image , multiple options, open ended questions and the choices of automatic grading and manual one.
- **Vision:** Quizzes are a crucial part of education and a teacher should have the ability to create a course and notify students of it.

16. Mobile App Availability

- **Description:** Mobile app availability ensures that learners can access the platform on their smartphones and tablets. Responsive design and optimized functionality enable on-the-go learning, accommodating busy schedules.
- **Vision:** Mobile app availability expands learning opportunities beyond traditional settings. By enabling learners to engage with content anytime, anywhere, this feature facilitates continuous learning and adapts to modern lifestyles.

17. Fast Performance

- **Description:** Fast performance ensures that the platform responds promptly to user interactions. Swift loading times, seamless navigation, and minimal delays contribute to a frustration-free and efficient learning experience.
- **Vision:** Fast performance is essential for maintaining learner engagement and focus. By minimizing waiting times and interruptions, this feature supports a seamless learning flow and enables learners to maximize their study time.

18. Blog per Course

- **Description:** allowing commenting on each teacher post and to allow students to make their own posts in another tab(blog) in each course.
- **Vision:** allow student interaction and encourage a community to help each other.

Should Have Features:

1. Dark Mode Option

- **Description:** A dark mode option provides an alternative color scheme that reduces eye strain in low-light environments. This feature offers a visually comfortable experience for learners who prefer darker interfaces.
- **Vision:** A dark mode option enhances user comfort and accessibility. By promoting a more relaxed viewing experience, this feature accommodates different learning environments and supports extended study sessions.

2. Youtube video Integration

- **Description:** Allow teachers to include youtube embed (iframes in web) to help students through pasting the link into the post.
- **Vision:** Allow teachers to add special resources.

3. SCROM/Xapi/Interopearty Conformance

- **Description:** apply Xapi standards to allow flexibility of data and data sharing between LMS. Those standards are meant to organize your system and processes to help reduce time and data wasted between different students and courses.
- **Vision:** allowing teachers an easier time when creating courses by reusing course materials and allowing sharing of content between different systems.

4. Enhanced Search Tools

- **Description:** Enhanced search tools enable learners to locate specific content quickly. Robust search functionalities, advanced filters, and accurate keyword recognition enhance content discovery and retrieval.
- **Vision:** Enhanced search tools save time and effort by enabling efficient content exploration. By facilitating easy access to resources, this feature supports focused learning and reduces frustration caused by information overload.

5. Customizable Settings

- **Description:** Customizable settings empower learners to personalize their platform experience. Adjustable preferences for themes, layout, notifications, and language ensure that the platform adapts to individual needs.
- **Vision:** Customizable settings cater to diverse learning preferences. By allowing learners to tailor their environment, this feature enhances comfort and satisfaction, fostering a sense of ownership over the learning journey.

6. Direct File Downloads

- **Description:** Direct file downloads allow learners to easily download course materials to their devices. This feature eliminates extra steps and provides convenient offline access to resources.
- **Vision:** Direct file downloads enhance resource accessibility. By enabling learners to save materials for offline viewing, this feature ensures uninterrupted learning even in areas with limited or unstable internet connectivity.

7. Tutorials

- **Description:** use tools like “scribe” to create video tutorials on how to use different website features.
- **Vision:** help students get used to the system and familiarize themselves with it quickly.

8. Improved Notifications

- **Description:** Improved notification systems ensure that learners receive timely updates about assignments, deadlines, and announcements. Customizable preferences and reliable delivery enhance communication and task management.
- **Vision:** Improved notifications keep learners informed and organized. By reducing the risk of missing important information, this feature promotes effective time management and supports proactive learning engagement.

9. Efficient File Management

- **Description:** Efficient file management tools enable learners and instructors to organize, upload, and share resources seamlessly. Intuitive file structures, version control, and easy document management enhance content accessibility.
- **Vision:** Efficient file management simplifies resource sharing and access. By providing a structured and user-friendly file repository, this feature optimizes content distribution and contributes to a well-structured learning environment.

10. Integrated External Resources

- **Description:** Integration with external resources allows learners to access additional learning materials from reputable sources. Links to relevant websites, articles, and multimedia enrich the learning experience with diverse perspectives.
- **Vision:** Integrated external resources broaden the scope of learning. By connecting learners to a wealth of supplementary materials, this feature encourages exploration and critical thinking, enhancing the depth and breadth of knowledge.

11. Assessment Tools/Teacher Dashboard

- **Description:** Assessment tools enable instructors to design and administer quizzes, assignments, and assessments within the platform. Automated grading, feedback mechanisms, and performance analytics streamline the evaluation process.
- **Vision:** Assessment tools facilitate accurate and timely evaluation. By providing instructors with efficient grading and learners with insightful feedback, this feature supports continuous improvement and empowers learners to track their progress.

12. Feedback Mechanisms

- **Description:** Feedback mechanisms enable learners to provide input on courses, content, and the platform itself. Surveys, ratings, and open forums foster learner engagement and empower them to shape their learning environment.
- **Vision:** Feedback mechanisms promote a learner-centered approach. By involving learners in platform improvements and content refinement, this feature enhances user satisfaction and contributes to a continuously evolving learning ecosystem.

13. In-depth Analytics

- **Description:** In-depth analytics provide detailed insights into learner progress, engagement, and performance. Robust data visualization and reporting tools offer instructors and learners a comprehensive view of their learning journey.
- **Vision:** In-depth analytics facilitate informed decision-making. By offering data-driven insights, this feature empowers instructors to tailor interventions, optimize instructional strategies, and personalize learning experiences.

Nice to Have Features:

1. Live Meeting Functionality

- **Description:** Live meeting functionality enables real-time virtual interactions among learners, instructors, and peers. Integrated video conferencing, chat, and collaborative tools facilitate synchronous learning experiences.
- **Vision:** Live meeting functionality enriches collaborative learning. By simulating in-person interactions, this feature fosters dynamic discussions, immediate feedback, and spontaneous knowledge sharing, enhancing engagement and interactivity.

2. Personalized Learning Paths

- **Description:** Personalized learning paths allow learners to customize their curriculum based on their goals, preferences, and skill levels. Adaptive content recommendations and learning roadmaps optimize individual learning trajectories.
- **Vision:** Personalized learning paths cater to diverse learning needs. By tailoring content and pacing to individual requirements, this feature supports self-directed learning and fosters a sense of ownership over the educational journey.

3. Collaborative Features/ Student teams and shared scores

- **Description:** Collaborative features facilitate group work and peer interaction. Shared workspaces, collaborative editing, and group discussions support cooperative learning, enabling learners to collaborate on projects and assignments.
- **Vision:** Collaborative features foster teamwork and knowledge exchange. By encouraging collaborative problem-solving and creative thinking, this feature prepares learners for real-world collaborative scenarios and enhances their interpersonal skills.

EdTech Insights: Exploring the Online Learning Experience

Dear participant,

Thank you for taking part in our project survey. We are currently working on a graduation project aimed at developing an innovative online educational platform for university students. Your feedback is crucial in shaping the design and features of the platform.

Thank you for your time and valuable contribution. Your comments will make a difference in improving online education.

** Indicates required question*

1. In which language would you like to view the form questions? *

Please note that you are welcome to provide your answers in either Arabic or English. Feel free to use the language that you are most comfortable with

Mark only one oval.

- Arabic *Skip to question 2*
- English *Skip to question 8*

معلومات عامة

2. *في أي سنة دراسية أنت؟

Mark only one oval.

السنة الإعدادية / التمهيدية

السنة الأولى

السنة الثانية

السنة الثالثة

السنة الرابعة

السنة الخامسة

السنة السادسة

خريج

3. * ما هي الجامعة التي ترتادها حاليا؟

Mark only one oval.

- Ahram Canadian University
- Ain Shams University
- Al Alamein International University
- Al-Azhar University
- Alexandria University
- Arab Academy for Science, Technology and Maritime Transport
- Arish University
- Assiut University
- Aswan University
- Badr University in Cairo
- Benha University
- Beni-Suef University
- Cairo University
- Damanhour University
- Damietta University
- Delta University for Science and Technology
- Deraya University
- Egyptian Chinese University
- Egyptian Russian University
- Egypt-Japan University of Science and Technology
- Fayoum University
- Future University in Egypt
- Galala University
- Heliopolis University
- Helwan University
- Kafrelsheikh University
- King Salman International University
- Luxor University

- Mansoura University
- Matrouh University
- Menoufia University
- Minia University
- Misr International University
- Misr University for Science and Technology
- Modern Sciences and Arts University
- Nahda University
- New Giza University
- New Valley University
- Nile University
- October 6 University
- Pharos University in Alexandria
- Port Said University
- Sinai University
- Sohag university
- South Valley University
- Suez Canal University
- Suez University
- Tanta University
- The American University in Cairo
- The Arab Academy for Management, Banking and Financial Sciences
- The British University in Egypt
- The German University in Cairo
- Université Française d'Égypte
- University of Sadat City
- University of Science and Technology at Zewail City
- Zagazig University
- أخرى

4. في حال اختيار "أخرى" يرجى كتابة اسم جامعتك

5. *في أي كلية تدرس حاليا؟

Mark only one oval.

- Faculty of Agriculture
- Faculty of Alsun (Languages)
- Faculty of Applied Arts
- Faculty of Arts
- Faculty of Archaeology
- Faculty of Commerce
- Faculty of Computers and Information Sciences
- Faculty of Dentistry
- Faculty of Dar El-Ulum
- Faculty of Economics and Political Science
- Faculty of Education
- Faculty of Engineering
- Faculty of Fine Arts
- Faculty of Law
- Faculty of Mass Communication
- Faculty of Medicine
- Faculty of Nursing
- Faculty of Pharmacy
- Faculty of Physical Education
- Faculty of Science
- Faculty of Social Work
- Faculty of Specific Education
- Faculty of Tourism and Hotel Management
- Faculty of Veterinary Medicine
- أخرى

6. في حال اختيار "أخرى" يرجي كتابة اسم كليةك

7. هل سبق لك استعمال منصات التعليم عن بعد خلال سنوات دراستك بالجامعة؟ *

Mark only one oval.

نعم *Skip to question 14*

لا *Skip to question 56*

Skip to question 14

General Information

8. What is your current university year? *

Mark only one oval.

Preparatory Year

Freshman/First Year

Sophomore/Second Year

Junior/Third Year

Senior/Fourth Year

Fifth Year

Sixth Year

Graduate

9. What university are you currently attending? *

Mark only one oval.

- Ahram Canadian University
- Ain Shams University
- Al Alamein International University
- Al-Azhar University
- Alexandria University
- Arab Academy for Science, Technology and Maritime Transport
- Arish University
- Assiut University
- Aswan University
- Badr University in Cairo
- Benha University
- Beni-Suef University
- Cairo University
- Damanhour University
- Damietta University
- Delta University for Science and Technology
- Deraya University
- Egyptian Chinese University
- Egyptian Russian University
- Egypt-Japan University of Science and Technology
- Fayoum University
- Future University in Egypt
- Galala University
- Heliopolis University
- Helwan University
- Kafrelsheikh University
- King Salman International University
- Luxor University

- Mansoura University
- Matrouh University
- Menoufia University
- Minia University
- Misr International University
- Misr University for Science and Technology
- Modern Sciences and Arts University
- Nahda University
- New Giza University
- New Valley University
- Nile University
- October 6 University
- Pharos University in Alexandria
- Port Said University
- Sinai University
- Sohag university
- South Valley University
- Suez Canal University
- Suez University
- Tanta University
- The American University in Cairo
- The Arab Academy for Management, Banking and Financial Sciences
- The British University in Egypt
- The German University in Cairo
- Université Française d'Égypte
- University of Sadat City
- University of Science and Technology at Zewail City
- Zagazig University
- Other

10. If you choose 'Other' please write your University

11. What is your faculty or area of study? *

Mark only one oval.

- Faculty of Agriculture
- Faculty of Alsun (Languages)
- Faculty of Applied Arts
- Faculty of Arts
- Faculty of Archaeology
- Faculty of Commerce
- Faculty of Computers and Information Sciences
- Faculty of Dentistry
- Faculty of Dar El-Ulum
- Faculty of Economics and Political Science
- Faculty of Education
- Faculty of Engineering
- Faculty of Fine Arts
- Faculty of Law
- Faculty of Mass Communication
- Faculty of Medicine
- Faculty of Nursing
- Faculty of Pharmacy
- Faculty of Physical Education
- Faculty of Science
- Faculty of Social Work
- Faculty of Specific Education
- Faculty of Tourism and Hotel Management
- Faculty of Veterinary Medicine
- Other

12. If you choose 'Other' please write your faculty

13. Have you ever used any online learning platform during your university studies? *

Mark only one oval.

Yes *Skip to question 35*

No *Skip to question 56*

Skip to question 35

استخدام المنصات الإلكترونية في التعلم الجامعي: الأدوات وفضائل الطلاب

يرجى ملاحظة أنه يمكنك تقديم إجاباتك سواء باللغة العربية أو الإنجليزية. لا تتردد في استخدام اللغة التي تجدها أكثر راحة لكم.

14. * يرجى تحديد المنصات التي قمت باستخدامها (يمكنك اختيار أكثر من منصة حسب استخدامك الشخصي)

Check all that apply.

- Moodle
- Blackboard Learn
- Google Classroom
- Acadox
- Canvas
- Edmodo
- Schoology
- Microsoft Teams
- Brightspace (D2L)
- ELM - The E-Learning Management
- Sakai
- Open edX
- منصة تعلم مخصصة لجامعةك
- Other: _____

15. إذا اخترت "أخرى" ، يُرجى كتابة اسم المنصة؟

16. * من بين هذه المنصات، أختر المنصة التي تفضل استخدامها بشكل أساسي

يمكنك اختيار المنصة التعليمية التي تروق لك وتناسب مع احتياجاتك كطالب، وتتيح لك الاستفادة القصوى من عملية التعلم

Mark only one oval.

- Moodle
- Acadox
- Blackboard Learn
- Google Classroom
- Canvas
- Edmodo
- Schoology
- Microsoft Teams
- Brightspace (D2L)
- ELM - The E-Learning Management
- Sakai
- Open edX
- منصة تعلم مخصصة لجامعةك

17. * ما مدى استخدامك لتلك المنصة

Mark only one oval.

- "استخدمها بشكل متكرر " بشكل يومي أو أسبوعي"
- "استخدمها بشكل متوسط " بشكل نصف شهري أو شهري"
- "استخدمها نادراً " عندما يطلب مني ذلك"

18. * هل تفضل استخدام المنصة كموقع على الكمبيوتر أم كتطبيق على الهاتف المحمول؟

Mark only one oval.

موقع على الكمبيوتر.

تطبيق على الهاتف المحمول.

أفضل استخدام المنصة على الكمبيوتر والهاتف المحمول على حد سواء.

لا يهمني، أستخدمها على أي منصة.

Skip to question 19

مراجعة المنصات الموجودة : تقييم وتفاصيل الأداء وواجهة المستخدم

يرجى ملاحظة أنه يمكنك تقديم إجاباتك سواء باللغة العربية أو الإنجليزية. لا تتردد في استخدام اللغة التي تجدها أكثر راحة لكم.

19. * قيّم تجربتك العامة مع تلك المنصة من 10

حيث 1 تعني التجربة سيئة جداً و 10 تعني ممتازة جداً

20. * هل يمكنك توضيح سبب اختيارك لهذا التقييم بإيجاز؟

21. * ما هي الميزات/الأدوات التي تستخدمها بشكل متكرر في المنصة؟

Check all that apply.

- لوحة التحكم والإحصائيات
- محتوى التعلم ومواد الدورات
- التواصل والمناقشات
- التقويم والواجبات
- الاختبارات والتقييمات
- التقارير والإحصائيات
- الفصول الافتراضية والمحاضرات المباشرة
- الاشتراكات والإشعارات
- التعلم التفاعلي والمحتوى المتعدد الوسائط
- ممتاحة في منصة Moodle (المدونات والملفات الشخصية)
- ممتاحة في منصة Moodle (مجموعات الطلاب والعمل التعاوني)
- Google Classroom (متاح في) إنشاء الفصول الدراسية وتنظيمها
- Google Classroom (متاح في) توزيع المهام والواجبات
- Google Classroom (متاحة في) المواد المرجعية والموارد التعليمية
- Google Classroom (متاح في) تقييم وتعليق على أعمال الطلاب
- Google Classroom (متاح في) تتبع التقدم والأداء
- Google Classroom (متاحة في) إعلانات الفصول والتذكيرات
- Google Classroom (متاح في) التكامل مع خدمات G-suite مثل Google Drive و Google Docs
- Other: _____

22. * هل هناك أي ميزات/أدوات نادراً ما تستخدمها أو لم تستخدمها على الإطلاق؟

يمكنك اختيار أكثر من إجابة حسب تجربتك الشخصية

Check all that apply.

- لوحة التحكم والإحصائيات
- محتوى التعلم ومواد الدورات
- التواصل والمناقشات
- التقويم والواجبات
- الاختبارات والتقييمات
- الفصول الافتراضية والمحاضرات المباشرة
- الاشتراكات والإشعارات
- التعلم التفاعلي والمحتوى المتعدد الوسائط
- متاحة في منصة Moodle (المدونات والملفات الشخصية)
- متاحة في منصة Moodle (مجموعات الطلاب والعمل التعاوني)
- متاح في Google Classroom (إنشاء الفصول الدراسية وتنظيمها)
- متاح في Google Classroom (توزيع المهام والواجبات)
- متاحة في Google Classroom (المواد المرجعية والموارد التعليمية)
- متاح في Google Classroom (تقييم وتعليق على أعمال الطلاب)
- متاح في Google Classroom (تتبع التقدم والأداء)
- متاحة في Google Classroom (إعلانات الفصول والتذكيرات)
- التكامل مع خدمات G-suite مثل Google Drive و Google Docs (متاح في Google Classroom)
- لا أنا أستخدم كل الميزات/الأدوات المتاحة
- Other: _____

23. * هل واجهت أي مشاكل أو أعطال مع تلك المنصة؟

يمكنك اختيار أكثر من إجابة حسب تجربتك الشخصية

Check all that apply.

- مشاكل في تسجيل الدخول أو إعادة تعيين كلمة المرور
 - صعوبة في تحميل الملفات أو المواد التعليمية
 - تأخر في تحميل الصفحات أو بطيء الاتصال
 - عدم وضوح الواجهة أو تنظيم المحتوى
 - مشاكل في تقديم الواجبات أو استلامها
 - صعوبة في التواصل مع المحاضرين أو الطلاب
 - عدم استقبال إشعارات أو تحديثات بشكل صحيح
 - مشاكل في عرض المحاضرات المسجلة
 - انقطاع الخدمة أو تعطل المنصة بشكل مؤقت
 - لم أواجه أي مشاكل فنية
- Other: _____

24. * على مقياس من 1 إلى 5، قم بتقييم الأداء والسرعة في تلك المنصة

قم بتقييم سرعة وأداء المنصة.

Mark only one oval.

سيء جداً

1



2



3



4



5



ممتاز

25. * على مقياس من 1 إلى 5، قم بتقييم واجهة المستخدم في تلك المنصة

قم بتقييم سهولة استخدام واجهة المستخدم وجاذبيتها.

Mark only one oval.

صعب جداً وغير جاذبة

1



2



3



4



5



سهلة جداً وجاذبة

26. * على مقياس من 1 إلى 5، قم بتقييم المميزات / الأدوات المتاحة في تلك المنصة

قم بتقييم مدى وجود الميزات التي تحتاجها في المنصة.

Mark only one oval.

غير كافٍ

1



2



3



4



5



ممتاز

27. * ما هي التحسينات أو التغييرات التي تود رؤيتها في تلك منصة؟

Skip to question 28

تقييم المنصة و التعليقات والأقتراحات

يرجى ملاحظة أنه يمكنك تقديم إجاباتك سواء باللغة العربية أو الإنجليزية. لا تتردد في استخدام اللغة التي تجدها أكثر راحة لكم.

*** 28. ما هو الجانب الأكثر أهمية بالنسبة لك عند استخدام منصة التعلم الإلكتروني؟**

Check all that apply.

- سهولة التصميم والاستخدام.
- تنظيم المنصة دون الحاجة للتركيز على التصميم الجذاب.
- الأداء السريع والفعال للمنصة بغض النظر عن التصميم.
- توفير مجموعة متنوعة من الأدوات والمميزات حتى لو لم احتاج إليها.
- التركيز على جاذبية التصميم حتى لو أثر ذلك على سهولة الاستخدام.
- سرعة الوصول إلى الأدوات التي استخدمها بشكل متكرر.
- التركيز على جاذبية المنصة حتى لو أثر ذلك على سرعة أداء المنصة

*** 29. ما هي الجوانب التي لا يمكنك تحملها في منصة التعلم الإلكتروني؟**

Check all that apply.

- تصميم معقد أو مربك يصعب فهمه.
- تنظيم غير واضح للمحتوى أو الواجهة.
- بطء في تحميل الصفحات أو مشاكل في الاتصال.
- مشاكل في تسجيل الدخول أو إعادة تعيين كلمة المرور.
- صعوبة في تحميل الملفات أو المواد التعليمية.
- صعوبة في تقديم أو استلام الواجبات.
- صعوبة في التواصل مع المدرسين أو الطلاب الآخرين.
- عدم تلقي الإشعارات أو التحديثات بشكل صحيح.
- مشاكل في عرض المحاضرات المسجلة.
- انقطاع الخدمة أو تعطل المنصة بشكل مؤقت.

*** 30. من بين العوامل الآتية ما هو الجانب الذي تفضل أن نوليه اهتماماً أكثر في المنصة الجديدة؟**

يمكنك الاختيار بناءً على تجربتك الشخصية واهتماماتك الخاصة.

Mark only one oval.

أداء وسرعة المنصة

تنوع وكثرة الأدوات والمميزات المتاحة داخل المنصة

واجهة مستخدم جذابة وفاعلية

سهولة الاستخدام والوصول السريع إلى الهدف

31. * ما هو تصورك للمنصة التعليمية المثالية؟

32. * ما هي الأدوات التي تتنى رؤيتها بشكل خاص في المنصة الجديدة؟

33. هل لديك أي اقتراحات لتسمية المنصة الجديدة؟

34. هل لديك أي اقتراحات للألوان الممكن استخدامها في المنصة الجديدة؟

Usage of E-Learning Platforms in Higher Education: Student Tools and Preferences

Please note that you are welcome to provide your answers in either Arabic or English. Feel free to use the language that you are most comfortable with

35. Please specify the platforms you have used (you can select multiple platforms based on your personal usage). *

Check all that apply.

- Moodle
- Blackboard Learn
- Google Classroom
- Acadox
- Canvas
- Edmodo
- Schoology
- Microsoft Teams
- Brightspace (D2L)
- ELM - The E-Learning Management
- Sakai
- Open edX
- A customized learning platform for your university.
- Other: _____

36. If you choose "Other," please write the name of the platform.
-

37. Among these platforms, please select the platform that you prefer to use primarily. *

You can choose the educational platforms that appeal to you and align with your needs as a student, enabling you to maximize the learning process.

Mark only one oval.

- Moodle
- Acadox
- Blackboard Learn
- Google Classroom
- Canvas
- Edmodo
- Schoology
- Microsoft Teams
- Brightspace (D2L)
- ELM - The E-Learning Management
- Sakai
- Open edX
- A customized learning platform for your university.

38. How frequently do you use the platform? *

Mark only one oval.

- I use it frequently (daily or weekly).
- I use it moderately (every two weeks or monthly).
- I use it rarely (only when required).

39. Do you prefer using the platform as a website on your computer or as a mobile app? *

Mark only one oval.

- As a website on my computer.
- As a mobile application on my smartphone.
- I prefer using the platform on both computer and smartphone.
- It doesn't matter to me, I use it on any platform.

Skip to question 40

Platforms Review: Evaluation and Details of Performance and User Interface

Please note that you are welcome to provide your answers in either Arabic or English. Feel free to use the language that you are most comfortable with

40. On a scale of 1 to 10, rate your overall experience with the platform? *

41. Could you briefly explain the reason behind your rating choice? *

42. What are the features/tools that you frequently use on the platform? *

You can select multiple answers based on your personal experience.

Check all that apply.

- Dashboard and Statistics
- Learning Content and Course Materials
- Communication and Discussions
- Calendar and Assignments
- Tests and Assessments
- Virtual Classrooms and Live Lectures
- Subscriptions and Notifications
- Interactive Learning and Multimedia Content
- Blogs and Personal Files (available in Moodle)
- Student Groups and Collaborative Work (available in Moodle)
- Reference Materials and Educational Resources (available in Google Classroom)
- Integration with G-suite like Google Drive and Google Docs (available in Google Classroom)
- Other: _____

43. Are there any features/tools that you rarely or never use?

You can select multiple answers based on your personal experience.

Check all that apply.

- Dashboard and Statistics
- Learning Content and Course Materials
- Communication and Discussions
- Calendar and Assignments
- Tests and Assessments
- Virtual Classrooms and Live Lectures
- Subscriptions and Notifications
- Interactive Learning and Multimedia Content
- Blogs and Personal Files (available in Moodle)
- Student Groups and Collaborative Work (available in Moodle)
- Reference Materials and Educational Resources (available in Google Classroom)
- Integration with G-suite like Google Drive and Google Docs (available in Google Classroom)
- No, I use all the available features/tools.
- Other: _____

44. Have you encountered any issues or glitches with the platform? *

You can select multiple answers based on your personal experience.

Check all that apply.

- Login or password reset issues
- Difficulty in uploading files or learning materials
- Slow page loading or connectivity issues
- Unclear interface or content organization
- Problems with submitting or receiving assignments
- Difficulty in communicating with instructors or fellow students
- Not receiving notifications or updates correctly
- Issues with viewing recorded lectures
- Service interruptions or temporary platform downtime
- I haven't encountered any technical issues.
- Other: _____

45. On a scale of 1 to 5, rate the performance and speed of the platform. *

Mark only one oval.

Very poor



1

2

3

4

5

Excellent

46. On a scale of 1 to 5, rate the features/tools available on the platform. *

Mark only one oval.

Insufficient

1

2

3

4

5

Excellent

47. On a scale of 1 to 5, rate the user interface of the platform. *

Mark only one oval.

Very difficult and unattractive

1

2

3

4

5

Very easy and appealing

48. What improvements or changes would you like to see in the platform? *

Skip to question 49

Platform Evaluation and Feedback

Please note that you are welcome to provide your answers in either Arabic or English. Feel free to use the language that you are most comfortable with

49. What is the most important aspect for you when using an e-learning platform? *

Check all that apply.

- Ease of design and usability.
- Platform organization without the need for attractive design.
- Fast and efficient performance regardless of design.
- Providing a variety of tools and features even if you don't use them all.
- Attractive design even if it affects some ease of use.
- Quick access to frequently used tools.
- Attractive design even if it affects performance speed.

50. What are the aspects that you cannot tolerate in an e-learning platform? *

Check all that apply.

- Complex or confusing design that is difficult to understand.
- Unclear organization of content or interface.
- Slow page loading or connectivity issues.
- Login or password reset issues.
- Difficulty in uploading files or learning materials.
- Problems with submitting or receiving assignments.
- Difficulty in communicating with instructors or fellow students.
- Not receiving notifications or updates correctly.
- Issues with viewing recorded lectures.
- Service interruptions or temporary platform downtime.

51. Among the following factors, which aspect do you prefer us to prioritize more in the new platform? *

Mark only one oval.

- Performance and speed of the platform.
- Variety and abundance of tools and features available within the platform.
- Attractive and interactive user interface.
- Ease of use and quick access to the desired goals.

52. What are the specific tools you would like to see in the new platform? *

53. How do you imagine the ideal e-learning platform? *

54. Do you have any suggestions for naming the new platform?

55. Do you have any suggestions for possible colors to be used in the new platform?

Offline/physical Learning Section

56. Do you know what an e-learning platform is? *

Mark only one oval.

Yes

No

57. Which platform did you hear about? *

Check all that apply.

Moodle

Blackboard Learn

Google Classroom

Acadox

Canvas

Edmodo

Schoology

Microsoft Teams

Brightspace (D2L)

ELM - The E-Learning Management

Sakai

Open edX

Other: _____

58. What did you hear about their usefulness? *

59. Any obstacles that may prevent you from using them? Ex: they seem too complicated, not worth the effort, you can't find a way to learn how to use them ? *

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Google Forms

EdTech Insights: Exploring the Online Learning Experience For "Teaching Staff"

Dear participant,

Thank you for taking part in our project survey. We are currently working on a graduation project aimed at developing an innovative online educational platform for university students. Your feedback is crucial in shaping the design and features of the platform.

Thank you for your time and valuable contribution. Your comments will make a difference in improving online education.

* Indicates required question

General Information

1. What is your current job title? *

2. How many years of experience do you have in teaching? *

3. Which department do you currently work in? *

4. Please specify the main courses you teach. *

5. Have you used online learning platforms during your teaching tenure at the university? *

Mark only one oval.

- Yes *Skip to question 6*
- No

تقييم المنصات الإلكترونية المستخدمة

يرجى ملاحظة أنه يمكنك تقديم إجاباتك سواء باللغة العربية أو الإنجليزية. لا تتردد في استخدام اللغة التي تجدها أكثر راحة لك.

6. يرجى تحديد المنصات التعليمية التي استخدمتها خلال سنوات تدريسك؟ *

يمكنك اختيار أكثر من منصة حسب استخدامك الشخصي

Check all that apply.

- Moodle
- Blackboard Learn
- Google Classroom
- Acadox
- Canvas
- Edmodo
- Schoology
- Microsoft Teams
- Brightspace (D2L)
- ELM - The E-Learning Management
- Sakai
- Open edX
- منصة تعلم مخصصة لجامعةك
- Other: _____

7. إذا اخترت "أخرى"، يرجى كتابة اسم المنصة؟
-

8. من بين هذه المنصات، أي منصة تعليمية تعتبرها تفضيلك الأول؟ *

يمكنك اختيار المنصات التعليمية التي تروق لك وتناسب مع احتياجاتك، وتتيح لك الاستفادة القصوى من عملية التعليم

Mark only one oval.

- Moodle
- Acadox
- Blackboard Learn
- Google Classroom
- Canvas
- Edmodo
- Schoology
- Microsoft Teams
- Brightspace (D2L)
- ELM - The E-Learning Management
- Sakai
- Open edX
- منصة تعلم مخصصة لجامعةك
- أخرى

9. إذا اخترت "أخرى"، يرجى كتابة اسم المنصة؟

10. هل تفضل استخدام المنصة كموقع على الكمبيوتر أم كتطبيق على الهاتف المحمول؟ *

Mark only one oval.

- موقع على الكمبيوتر.
- تطبيق على الهاتف المحمول.
- أفضل استخدام المنصة على الكمبيوتر والهاتف المحمول على حد سواء.
- لا يهمني، أستخدمها على أي منصة.

11. * لماذا اخترتها كفضيلك الأول؟

12. * ما هي الميزة / الأداة التي تستخدمها بشكل أكثر في هذه المنصة؟

13. * ما هي المشاكل التي واجهتك خلال استخدامك لهذه المنصة؟

14. كيف تعاملت مع هذه المشكلة؟

15. *****قييم تجربة استخدامك للمنصة من 5

حيث 1 تعني التجربة سيئة جداً و 5 تعني ممتازة جداً

Mark only one oval.

سيئة جداً

1



2



3



4



5



ممتازة



Skip to question 16

مقومات المنصة التعليمية المثالية

يرجى ملاحظة أنه يمكنك تقديم إجاباتك سواء باللغة العربية أو الإنجليزية. لا تتردد في استخدام اللغة التي تجدها أكثر راحة لك.

16. ***** من واقع خبرتك، أي الميزات / الأدوات يجب أن تتوافر في أي منصة تعليمية ولا يمكن التنازل عنها؟

17. ما هي الميزة / الأداة التي ترغب في وجودها في المنصة التعليمية الجديدة؟ *

18. من واقع خبرتك، ما هي المشكلة التي لا يجب أن تحدث في أي منصة تعليمية؟ *

19. هل لديك أي ملاحظات؟

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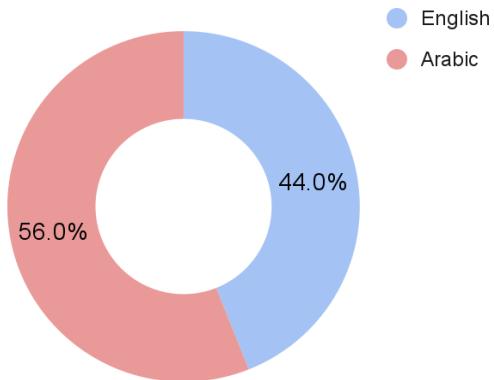
Google Forms

Students Survey Statistics

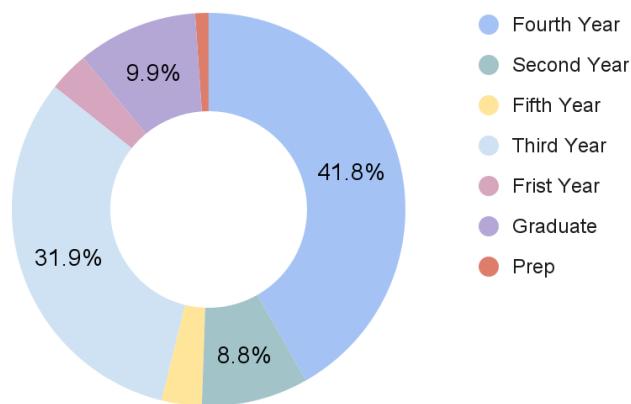
Total Participants : 100

General Info "Quantitative"

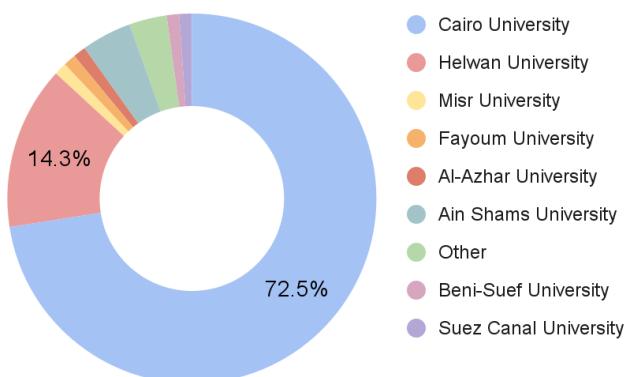
1. In which language would you like to view the form questions?



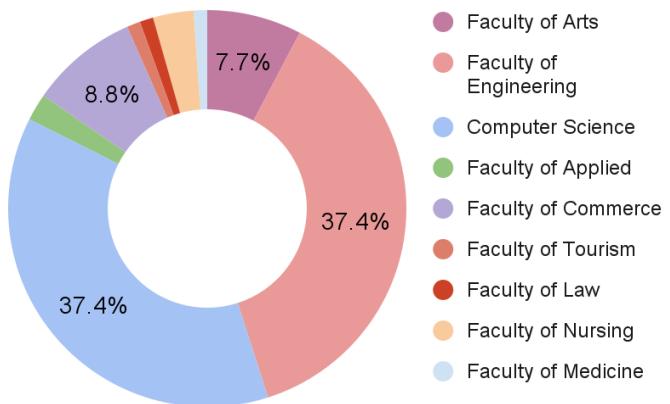
2. What is your current university year?



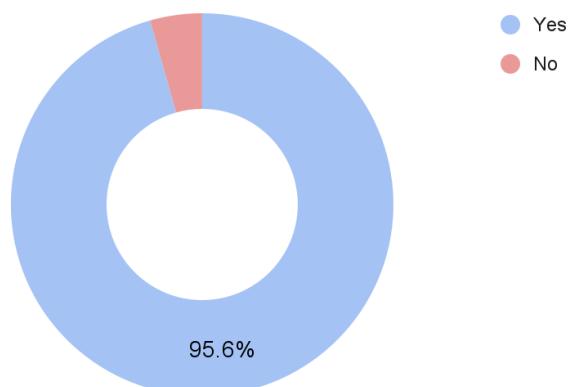
3. What university are you currently attending?



4. What is your faculty or area of study?

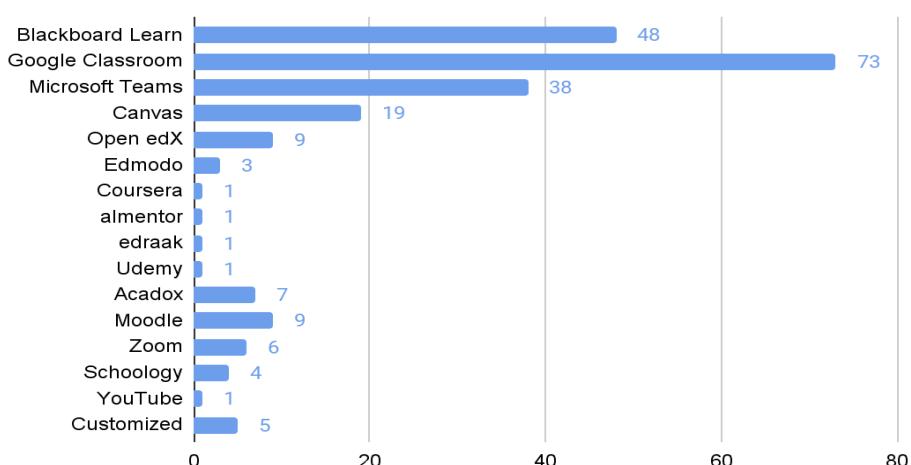


5. Have you ever used any online learning platform during your university studies?

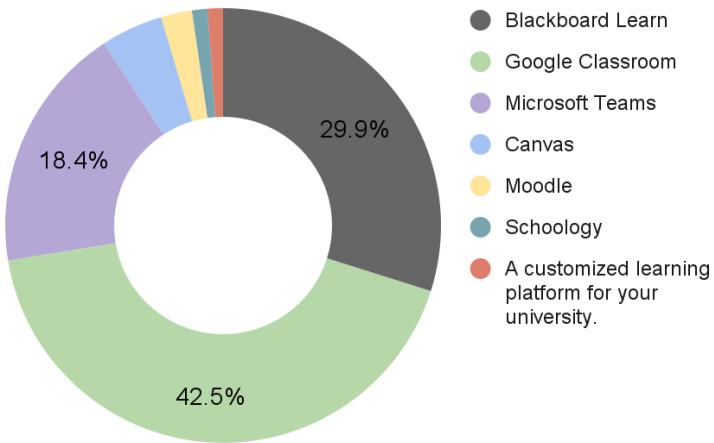


Usage of E-Learning Platforms in Higher Education

6. Please specify the platforms you have used (you can select multiple platforms based on your personal usage).



7. Among these platforms, please select the platform that you prefer to use primarily.



Blackboard Learn:

8. On a scale of 1 to 10, rate your overall experience with the platform?

- Based on the responses, the ratings range from 4 to 10, with an average rating of approximately 7.8.

9. Could you briefly explain the reason behind your rating choice?

- Based on the provided explanations for the ratings of Blackboard Learn, here is a summary of the reasons behind the rating choices:

Positive aspects:

- Blackboard Learn allows for uninterrupted lectures and provides the option to save recorded lectures.
- The platform is comprehensive and consolidates course content in one place.
- It is user-friendly and easy to navigate.
- It offers features such as meetings, grades, and exams.
- It is stable, easy to use, and has integrated features.
- It helps in organizing educational materials and recorded lectures.
- It saved a significant amount of time and facilitated learning.

Negative aspects:

- The user interface (UI) can be complex or messy for some users.
- There are occasional technical issues during online quizzes.
- Some desired functionalities are missing.
- It may be unavailable or restricted to specific universities.
- It can be clunky or difficult to use at times.
- There were complications with streaming and curriculum collection.

Some students experienced problems during enrollment due to codes or restrictions.

SWOT Analysis for Blackboard Learn:

Strengths:

- Uninterrupted lectures and the option to save recorded lectures.
- Comprehensive platform that consolidates course content in one place.
- User-friendly interface and easy navigation.
- Offers essential features like meetings, grades, and exams.
- Stable, easy to use, and integrated features.
- Aids in organizing educational materials and recorded lectures.
- Saves time and facilitates learning.

Weaknesses:

- Complex or messy user interface for some users.
- Occasional technical issues during online quizzes.
- Missing desired functionalities.
- Limited availability or restrictions to specific universities.

Opportunities:

- Addressing the user interface issues to improve overall user experience.
- Resolving technical glitches and enhancing platform performance.
- Incorporating additional features to meet diverse educational needs.
- Expanding availability to reach a broader user base.

Threats:

- Competition from other e-learning platforms.
- Negative user experiences leading to reduced adoption.
- Technological disruptions impacting platform usability.

10. On a scale of 1 to 5, rate the performance and speed of the platform.

- Based on the responses, the ratings range from 2 to 5, with an average rating of approximately 3.5.

These ratings suggest that the majority of students perceive the performance and speed of the platform as satisfactory, with some room for improvement.

Understanding the user perception of the platform's performance and speed helps in identifying areas that may require optimization to ensure a smoother and more efficient user experience.

11. On a scale of 1 to 5, rate the features/tools available on the platform.

- Based on the responses, the ratings range from 3 to 5, with an average rating of approximately 4.

These ratings indicate that the majority of students perceive the features/tools available on the platform as satisfactory to good.

Understanding the user perception of the available features/tools helps in identifying their effectiveness and areas that may require enhancement or additional functionalities to better support the learning process.

12. On a scale of 1 to 5, rate the user interface of the platform.

- Based on the responses, the ratings range from 2 to 5, with an average rating of approximately 3.7.

These ratings suggest that the user interface of the platform is generally perceived as average to good, with some room for improvement.

Understanding the user perception of the user interface helps in identifying areas that may require enhancement to improve the usability, clarity, and overall user experience.

13. What improvements or changes would you like to see in the platform?

- Based on the responses, here are some common themes:
 - Improved communication features: Some users expressed a desire for better communication channels between students, instructors, and administrators, allowing for easier interaction and discussions related to course content.
 - Easier navigation and user interface: Several users mentioned the need for a more user-friendly interface, with simplified navigation and a cleaner layout to reduce clutter and enhance the overall user experience.
 - Enhanced speed and performance: A few users highlighted the importance of improving the platform's speed and performance, ensuring smooth and efficient usage.
 - Accessibility and availability: Some users expressed a desire for the platform to be freely accessible to all users and available for use by everyone, suggesting the importance of inclusivity.
 - Clear instructions and tutorials: A few users mentioned the need for clear instructions and tutorials, particularly regarding the registration process, connectivity issues, and how to access and complete assignments.
 - Improved video streaming and quality: Some users requested improvements in the quality of online lectures, better video streaming, and enhanced connectivity to ensure a seamless learning experience.

Google Classroom Users

8. On a scale of 1 to 10, rate your overall experience with the platform?
 - Based on the responses, the ratings range from 7 and 10, with an average rating of approximately 8.54.
9. Could you briefly explain the reason behind your rating choice?
 - Based on the comments, we can identify several reasons behind the rating choices for the overall experience with Google Classroom. Here are the key points:

Positive aspects:

- Ease of use: Users find Google Classroom easy to navigate and utilize without requiring extensive explanation or training.
- Communication: The platform facilitates communication between students and teachers, allowing for messaging and task reminders before deadlines.
- Organization: Users appreciate the organizational features of Google Classroom, such as task tracking, submission dates, and easy access to learning materials.
- Integration with Google Drive: The seamless integration with Google Drive allows for easy access to and storage of learning materials.

Negative aspects:

- Lack of live meetings: Some users mention the absence of live meeting functionality within Google Classroom as a drawback.
- File download limitations: Users note that direct file downloads to their devices are not readily available and require specific methods.
- Communication issues: Some users mention challenges in communication between instructors, indicating that the platform's communication features may need improvement.
- Notification issues: Occasionally, users report issues with notifications not being received promptly or consistently.
- Desired features: Users express a desire for additional features, such as dark theme support, support for quizzes, improved separation between teacher and student posts, and enhanced meeting capabilities.

Overall, the majority of users find Google Classroom easy to use, efficient, and helpful for organizing their academic activities. However, there are suggestions for improvements and the addition of certain features to enhance the platform's functionality.

SWOT Analysis for Google Classroom:

Strengths:

- Ease of use and user-friendly interface.
- Effective communication features between students and teachers.
- Organizational tools for task tracking and submission dates.
- Seamless integration with Google Drive for easy access to learning materials.
- High overall user satisfaction, with an average rating of 8.54 out of 10.

Weaknesses:

- Lack of live meetings functionality within the platform.
- Some users face challenges with file download limitations.
- Communication features may need improvement based on user feedback.
- Occasional notification issues impacting timely updates.

Opportunities:

- Introducing live meeting capabilities to enhance real-time interaction.
- Improving file download processes for a smoother user experience.
- Refining communication features to address user concerns.
- Enhancing notification systems for more reliable and timely updates.
- Adding desired features like dark theme support, support for quizzes, and improved post separation.

Threats:

- Competition from other e-learning platforms offering similar functionalities.
- Potential user dissatisfaction if identified weaknesses are not addressed.
- Technological disruptions affecting platform performance and reliability.

10. On a scale of 1 to 5, rate the performance and speed of the platform.

- The average rating based on the responses is approximately 4.14, indicating a generally positive perception of the platform's performance and speed.

11. On a scale of 1 to 5, rate the features/tools available on the platform.

- Based on the responses, the ratings for the available features and tools range from 1 and 5, with an average rating of approximately 3.77.

12. On a scale of 1 to 5, rate the user interface of the platform.

- Based on the responses, the ratings for the User Interface range from 1 and 5, with an average rating of approximately 3.67.

13. What improvements or changes would you like to see in the platform?

Based on the feedback provided, users have expressed various suggestions and improvements they would like to see in the platform. Some of the common suggestions include:

- Improved Communication: Easier and more direct communication with supervisors or instructors.
- User Interface: Making the interface more user-friendly and familiar, possibly by adopting elements from well-known platforms like Facebook, WhatsApp, or YouTube.
- Better Organization: Implementing clearer organization, such as having organized folders within each course or subject.
- Direct Downloading: Allowing direct downloads similar to Google Drive, without the need to go to another platform.
- Dark Mode: Adding a dark mode option for improved readability and reduced eye strain.
- Enhanced Search Tools: Incorporating additional tools to help users find specific content more easily.
- Online Meetings: Introducing the ability to conduct online meetings within the platform.
- More Features and Settings: Providing more customizable features and settings to tweak the user interface.

- Simplicity and Clarity: Simplifying the platform for better usability and clearer navigation.
- Improved Recordings and Live Sessions: Enhancing the quality and features of recorded lectures and live sessions.

It's important to note that these suggestions come from individual users with their unique perspectives and preferences. Implementing changes to the platform would require careful consideration by the platform's developers, taking into account user feedback and the platform's overall goals and capabilities.

Microsoft Teams Users

14. On a scale of 1 to 10, rate your overall experience with the platform?

- Based on the responses, the ratings range from 7 and 10, with an average rating of approximately 8.54.

15. Could you briefly explain the reason behind your rating choice?

- Based on the comments, we can identify several reasons behind the rating choices for the overall experience with Google Classroom. Here are the key points:

Positive aspects:

- Ease of use: Users find Google Classroom easy to navigate and utilize without requiring extensive explanation or training.

Negative aspects:

- Lack of live meetings: Some users mention the absence of live meeting functionality within Google Classroom as a drawback.

Overall, the majority of users find Google Classroom easy to use, efficient, and helpful for organizing their academic activities. However, there are suggestions for improvements and the addition of certain features to enhance the platform's functionality.

SWOT Analysis for Microsoft Teams:

Strengths:

- Ease of use and user-friendly interface.

Weaknesses:

- Lack of live meetings functionality within the platform.

Opportunities:

- Introducing live meeting capabilities to enhance real-time interaction.

Threats:

- Competition from other e-learning platforms offering similar functionalities.

16. On a scale of 1 to 5, rate the performance and speed of the platform.

- The average rating based on the responses is approximately 4.14, indicating a generally positive perception of the platform's performance and speed.

17. On a scale of 1 to 5, rate the features/tools available on the platform.

- Based on the responses, the ratings for the available features and tools range from 1 and 5, with an average rating of approximately 3.77.

18. On a scale of 1 to 5, rate the user interface of the platform.

- Based on the responses, the ratings for the User Interface range from 1 and 5, with an average rating of approximately 3.67.

19. What improvements or changes would you like to see in the platform?

Based on the feedback provided, users have expressed various suggestions and improvements they would like to see in the platform. Some of the common suggestions include:

- Improved Communication: Easier and more direct communication with supervisors or instructors.

Microsoft Teams Users

8. On a scale of 1 to 10, rate your overall experience with the platform?

- Based on the responses provided, the ratings for the overall experience with Microsoft Teams platform range from 4 to 10, with an average rating of approximately 7.73.

9. Could you briefly explain the reason behind your rating choice?

- Based on the comments, we can identify several reasons behind the rating choices for the overall experience with Microsoft Teams. Here are the key points:

Positive aspects:

- Easy to use, clear, and simple interface.
- Availability of desired features and easy communication options.
- User-friendly design, easy to understand, and comfortable to work with on both computers and mobile devices.
- Simple platform with no complications.
- Effective meeting quality and chat functionality.
- Organized and straightforward in its approach.
- Good performance without frequent disconnections or interruptions.

Negative aspects:

- Occasional login issues and disruptions in connectivity.
- Some users experienced lags and slow loading times.
- Occasional errors and issues.
- Share screen function not working well, and slow performance at times.
- Internet-related problems causing occasional disruptions.

Overall, Microsoft Teams is praised for its ease of use, user-friendly interface, and effective communication features. However, occasional technical issues and connectivity problems were some of the areas that affected the overall experience for a few users.

SWOT Analysis for Microsoft Teams:

Strengths:

- Easy to use, clear, and simple interface.
- Availability of desired features and easy communication options.
- User-friendly design, comfortable to work with on both computers and mobile devices.

- Organized and straightforward in its approach.
- Effective meeting quality and chat functionality.
- Good performance without frequent disconnections or interruptions.

Weaknesses:

- Occasional login issues and disruptions in connectivity.
- Some users experienced lags and slow loading times.
- Occasional errors and issues.
- Share screen function not working well, and slow performance at times.
- Internet-related problems causing occasional disruptions.

Opportunities:

- Addressing technical issues to improve overall platform stability and performance.
- Implementing UI enhancements based on user feedback to increase usability.
- Optimizing the platform to work efficiently on low-spec devices.
- Improving file upload and download speed and communication during lectures.
- Enhancing video quality and additional functionality like screenshot capabilities.

Threats:

- Competition from other collaboration and communication platforms.
- User dissatisfaction leading to reduced adoption and engagement.
- Technical disruptions impacting platform reliability and user experience.

8. On a scale of 1 to 5, rate the performance and speed of the platform.
 - Based on the responses, the ratings for the performance and speed of the platform range from 2 to 5, with an average rating of approximately 3.71.
9. On a scale of 1 to 5, rate the features/tools available on the platform.
 - Based on the responses, the ratings for the available features and tools on the platform range from 3 to 5, with an average rating of approximately 4.06.
10. On a scale of 1 to 5, rate the user interface of the platform.
 - Based on the responses, the User Interface (UI), the ratings range from 3 to 5, with an average rating of approximately 4.27.

11. What improvements or changes would you like to see in the platform?

Based on the responses, users would like to see the following improvements or changes in the platform:

- Faster speed and improved performance to avoid frequent issues and interruptions.
- Better user interface (UI) with some changes to enhance usability.
- Addressing the problem of slow file upload and download, as well as difficulties in communication during lectures.
- Improvements in video quality and the ability to take screenshots.
- Optimizing the platform to work efficiently on low-spec devices.
- Increased attention to assignments.
- No specific improvements requested by some users.

Overall, users seem to value a smoother and more efficient experience with the platform, focusing on speed, UI enhancements, and better functionality for their learning needs.

10. What is the most important aspect for you when using an e-learning platform?

- Based on the responses provided, the most important aspect when using an e-learning platform seems to be a combination of the following factors:
 - Fast and efficient performance: Users prioritize the platform's speed and effectiveness, regardless of its design.
 - Ease of design and usability: Users value a platform that is easy to navigate, intuitive, and user-friendly.
 - Quick access to frequently used tools: Users appreciate the ability to easily and quickly access the tools and features they frequently use.
 - Platform organization: Users prefer a well-organized platform that doesn't necessarily prioritize attractive design over functionality.

These aspects highlight the importance of a smooth user experience, efficient functionality, and convenient access to tools and features. Keep in mind that individual preferences may vary, and different users may have different priorities when it comes to e-learning platforms.

11. What are the aspects that you cannot tolerate in an e-learning platform?

- Based on the responses provided, that are generally not tolerated in an e-learning platform:
 - Complex or confusing design that is difficult to understand.
 - Slow page loading or connectivity issues.
 - Difficulty in uploading files or learning materials.
 - Problems with submitting or receiving assignments.
 - Issues with viewing recorded lectures.
 - Not receiving notifications or updates correctly.
 - Login or password reset issues.
 - Unclear organization of content or interface.
 - Difficulty in communicating with instructors or fellow students.
 - Service interruptions or temporary platform downtime.

These are some common aspects that can negatively impact the user experience and hinder effective learning in an e-learning platform.

12. Among the following factors, which aspect do you prefer us to prioritize more in the new platform?

- Based on the responses provided, it appears that the majority of the choices prioritize "Ease of use and quick access to the desired goals" in the new platform. Therefore, it would be advisable to prioritize this aspect to ensure that users can navigate the platform easily and efficiently reach their intended objectives.

13. What are the specific tools you would like to see in the new platform?

- Based on the responses provided, that are generally not tolerated in an e-learning platform:
 - Easy access to recorded lectures: A feature that allows users to find and access recorded lectures easily.
 - Meeting rooms: Virtual meeting rooms for synchronous learning and collaboration.
 - Personalized rooms or spaces: Private spaces where users can gather and organize their learning resources.

- YouTube integration: Integration with YouTube for easy access to external video resources.
- Search functionality: A robust search tool to quickly find specific content or resources within the platform.
- Help or support button: A visible button or feature that provides assistance or guidance to users when needed.
- Screen sharing: The ability to share screens during live sessions or virtual meetings.
- Improved assignment and task submission: Streamlined processes for reviewing, submitting, and receiving assignments and tasks.
- Statistics and analytics: Tools that provide insights and analytics on learning progress and performance.
- User-friendly interface: A visually appealing and intuitive user interface that enhances usability.
- Synced calendar and pace tracker: Integration with a calendar system and automatic tracking of learning progress.
- Messaging and communication features: In-platform chat or messaging capabilities to facilitate communication between students and instructors.
- Note-taking tools: Built-in tools for taking and saving notes within the platform.
- Dark mode: A visual option for a dark-themed interface, which can be easier on the eyes and provide a different aesthetic.
- Feedback and comments: The ability to leave comments, provide feedback, or engage in discussions related to course content.
- File sharing: Easy and efficient ways to share files and documents within the platform.
- Progress indicators: Visual indicators or tracking features to monitor the progress of completing a course.
- Voice call functionality: Easy-to-access voice call capabilities within the platform for communication purposes.
- Group collaboration tools: Features that facilitate collaboration among students, such as group chat or shared workspaces.
- Chatbot support: Integration of chatbot support to provide quick assistance and answer common questions.

These are just some examples of the tools and features that users would like to see in an ideal e-learning platform. The specific requirements may vary depending on individual preferences and needs.

14. How do you imagine the ideal e-learning platform?

- The ideal e-learning platform, based on the responses, would have the following features:
 - Ease of use: The platform should be easy to navigate and user-friendly, allowing users to find the necessary materials and features without complications.
 - Quick access to content: Users should be able to access recorded lectures and other educational materials at their convenience, without being bound to specific times or schedules.
 - Performance and speed: The platform should have fast loading times and a smooth performance to ensure a seamless learning experience.
 - Attractive and interactive user interface: An appealing and interactive interface can enhance engagement and make the learning process more enjoyable.
 - Availability of features and tools: The platform should provide a variety of tools and features that facilitate learning, such as communication tools, collaboration features, and content creation options.

- Integration with other apps and services: Integration with other apps, such as instant messaging, cloud storage, and calendar applications, can enhance the overall user experience and productivity.

It's important to note that these are general preferences and may vary depending on individual needs and preferences.

Timeline

8/23	9/23	10/23	11/23	12/23	1/24	2/24	3/24	4/24	5/24
Requirement Gathering: Proposal Writing. Proposal approval. survey creation. Analysis: Competitor analysis. SWOT analysis	Documentation started. Requirement gathering: Collecting survey responses. Analysis: Analysing survey. High-level features system recruitment.	Documentation cont. Analysis: Functional and non-functional requirements, Use case Diagrams and descriptions. Design: BPMN models, high level architecture. Preliminary dataflows.	Documentation cont. Analysis: Full UI/UX analysis. Detailed user personas and journeys. Design: Class Diagram. ERD Diagram. sequence Diagram. Preliminary wireframes.	Documentation cont. Finished UI Frames to use as references. Revising the Analysis and Design plans and resources. Initial Preparations for Implementation (API Endpoints guidelines, Mock data for testing, UI guidelines and rules)	Documentation cont. Halting due to first-semester finals. Only small auditions and fine-tuning	Documentation cont. Implementation: Mobile app Website Database Server	Documentation cont. Implementation: Mobile app Server Website Database	Documentation cont. Implementation: Security Testing: Increase testing cases and security testing. initial processes test cases test suite creations	Documentation cont. Testing: Running all regression cheks. Fixing any remaining bugs. Polishing UI

Work Distribution:

Marwan:

- Coordination of Work.
- Documentation writing and maintenance.
- System Features and Requirements.
- System Specification.
- Database System.
- Backend Servers.
- Testing.

Abd-Elrahman:

- Survey Creation and Its Analysis.
- Documentation Editing.
- System Features and Requirements.
- UX research.
- UI Frames.
- GP Presentation.

Ahmed:

- UseCase Descriptions.
- BPMN Diagrams.
- Class and ERD Diagrams.
- Mobile Application.
- Backend Server

David:

- Functional and non-functional requirements,
- UseCase Descriptions.
- BPMN Diagrams.
- Sequence Diagrams.
- Mobile Application.

Mohamed:

- Business plan.
- UseCase Diagrams.
- FrontEnd Application.
- Testing.

functional requirements:

1. User Authentication:

User initiates registration by providing details and system validates.
User logs in using credentials or third-party accounts.
User resets password if forgotten.

2. User Actions:

Students enrolled in courses, access content, and track progress.
Teacher manages assignments, materials, quizzes, and courses.

3. Platform Features:

User upload, downloads, and manages learning materials.
Users set preferences for language, accessibility, and appearance.

4. Course Management:

Teacher generates enrollment codes and manages courses.
Student self-enrolls using provided codes.

5. User Settings:

User updates profile, manages preferences, and data.

6. Feedback and Assessment:

Users provide feedback, ratings, and engage in assessments.

7. Mobile App and Accessibility:

Users access the platform via mobile app with optimized design.
User utilizes accessibility features.

8. Manager Functions:

Manager manages users, courses, platform, and configurations.

9. Reports and Analytics:

Manager reviews reports and analytics for decision-making.

10. User Support and Maintenance:

Manager supports users and oversees platform maintenance.

non-functional:

Usability:

Accessibility: Ensure compliance with accessibility standards (e.g., WCAG) to make the LMS usable for individuals with disabilities.

User Experience (UX): Define guidelines for the overall user experience, such as intuitive navigation, consistent layouts, and responsive design.

Performance: To ensure speed and Efficiency, the actual system will be built with low-resources servers in mind and the front-end will be made with platform specific technology to ensure efficiency. By relying on scalable hosting services like AWS, or ORACLE to scale for more customers. and use a microservices architecture to enable scalability, near 100% uptime, and easy integration of new features.

Reliability: Reliability is concerned with ensuring our services go down as little as possible, this can be done by ensuring our code robustness and how it deals with errors and using high quality services to manage the servers.

Use Cases:

1. Admin Creates User Account

- **Admin Creates a new user account with user Email and ID**
- **It Auto Generates a random password for the account**

2. User Logins

- User clicks on the "LogIn" button.
- User enters their registered College ID/email and password.
- System validates the entered credentials.
- If valid:
 - Users gain access to their account and the platform.
- If invalid:
 - System displays an error message.
 - User has the option to reset the password or contact support.

3. User Resets Password

- User clicks on the "Forgot Password" link.
- User is prompted to enter their registered email address.
- System verifies the email address's existence in the database.
- If the email is valid:
 - System sends a password reset link to the user's email.
 - User receives the email and clicks on the reset link.
 - User is redirected to a page where they can create a new password.
 - User enters a new password and confirms it.
 - The system updates the user's password.
 - User can now log in with the new password.
- If the email is not valid:
 - System displays an error message.
 - User is prompted to re-enter their email address.

4. Student Enrolls in Course

- Student logs into their account.
- Student navigates to the course catalog or search feature.
- Student selects a course they want to enroll in.
- System adds the course to the user's enrolled courses.
- If the course is not full:
 - Student can now access the course content.
- If the course is full (maximum enrollment reached):
 - System displays a message indicating that the course is full.
 - Student can join a waiting list if available or choose another course.

5. Teacher Adds Assignment

- Teacher logs into their account.
- Teacher accesses the specific course where they are the instructor.
- Teacher navigates to the assignment creation section.
- Teacher provides assignment details, including title, description, and due date.
- Teacher sets assignment parameters, such as maximum points.
- Teacher creates the assignment.
- The system notifies enrolled students about the new assignment.

6. Student Submits Assignment

- Students log into their account.
- Students access the course where they have an assignment.
- Student navigates to the assignment submission section.
- Students upload their assignment file or enters text.
- Student submits the assignment.
- The system records the submission and notifies the Teacher.

7. Student Checks Course Grades

- Student logs into their account.
- Student accesses the course.
- The system displays the quizzes and assignments' grades for this specific courses

8. Student Labels and Categorization/Platform Organization

- System must organize content with clear labels, categories, nested folders, and efficient tagging systems for easy resource discovery.

9. Student Self-Enrolls with Codes

- Student receive the enrollment code and logs into their account.
- Student navigates to the "Enroll in a Course" section.
- Student enters the enrollment code provided by the teacher.
- System verifies the code's validity.
- If the code is valid:
 - Student is successfully enrolled in the course.
 - System adds the course to the student's enrolled courses.
- If the code is invalid or expired:
 - System displays an error message.
 - Student has the option to re-enter a valid code.

10. Admin Creates Courses

- Admin logs into their account.
- Admin accesses the course creation section.
- Admin provides course details, including title, image, description, code, enrollment code, and assigned teachers.
- Admin creates the course.
- The system makes the course available to enrolled students.

11.Teacher Adds/Reuses Material

- Teacher logs into their account.
- Teacher navigates to the course materials section.
- Teacher uploads course materials (readings, videos, assignments) or reuses previously uploaded materials.

12.Teacher Adds Quiz

- Teacher logs into their account.
- Teacher accesses the course where they want to create a quiz.
- Teacher creates a new quiz with questions, including text, multiple-choice.
- Teacher configures the Grade of each question.
- Teacher configures grading options (automatic or manual).
- Teacher configures the time for the quiz.
- Teacher publishes the quiz for students.
- The system notifies enrolled students about the new quiz.

13.Student Submits Quiz

- Student logs into their account.
- Student accesses the course with a quiz assignment.
- Student takes the quiz, answering questions.
- Student submits the quiz.
- System grades the quiz automatically (if configured) or awaits manual grading by the instructor.
- The system records the submission and notifies the Teacher.

14.Teacher Grades Quiz

- Teacher can access a certain Quiz by going to the course home page and checking the quiz menu
- Upon selecting the desired quiz and accessing its page, he will find a tab where a list of all students in this course will be provided with their submission status
- He can select a submission where he will go through each question and that students answer manually and select whether it is correct or not

15. Student Checks Pending deadlines:

- Student can either Enter a course home page and check the quizzes and assignment sections
- Alternatively the student can access the calendar page where all upcoming dates for pending tasks will be shown

16. Teacher Creates Post

- Teacher can Enter any course home page where he has privilege to post and simply access the post creation area
- He must add a title and description for the post
- He can Add a schedule date, a poll, and materials to the post

17.Teacher Integrates YouTube Video

- Teacher logs into their account.
- Teacher accesses the course where they want to include a YouTube video.
- When teacher creates a post they can paste a YouTube link inside the post description and it will get pasted into an embed automatically
- System validates the URL and fetches the video details.
- System adds the YouTube video in the course content.

18.User Accesses Settings

- Users can access their account settings by clicking on their profile picture or username.
- Within the user settings section, users can customize various aspects of their platform experience, including:
 - **Profile Information:**
 - Users can update their profile picture.
 - Users can edit their name, bio, or other personal details.
 - **Privacy Settings:**
 - Users can configure privacy settings for their profile, such as who can view their profile and contact them.
 - **Notification Preferences:**
 - Users can manage their notification preferences, including email notifications, course updates, and announcements.
 - **Language Preferences:**
 - Users can select their preferred language for the platform's interface.
 - **Theme Selection:**
 - Users can choose between different themes (e.g., light mode, dark mode) for the platform's appearance.
 - **Accessibility Settings:**
 - Users can enable or customize accessibility features, such as text-to-speech or high-contrast mode.
 - **Security Settings:**
 - Users can update their password or enable two-factor authentication for added security.
 - **Email Preferences:**
 - Users can specify their email communication preferences, such as newsletter subscriptions.
 - **Data Management:**
 - Users can access tools to manage their data, including downloading their course materials and personal information.

- Users can save their settings, and the platform will apply the changes accordingly.

19.Feedback Mechanisms

- System must allow learners to provide feedback on courses, content, and the platform itself through surveys, ratings, and open forums.

20.Assessment Tools/Teacher Dashboard

- System must offer assessment tools for instructors to design and administer quizzes, assignments, and assessments.
- System must provide automated grading, feedback mechanisms, course modifications, and course analytics to teachers.

21.Student Downloads Materials

- Students logs into their account.
- Students accesses the course for which they want to download materials.
- Students navigates to the "Course Materials" or "Resources" section of the course.
- Students locates the specific material they want to download (e.g., a document, video, presentation).
- Students clicks on the material to download it.
- Students selects the download location and confirms the download.
- The system initiates the download process.

22.Admin Manages User

- The Admin can view a list of all users registered on the platform.
- The Admin can search for specific users based on criteria such as name, email, or role (Teacher, Student, etc.).

- The Admin can access individual user profiles to view and edit their information.
- The Admin can reset passwords for users or force password changes.
- The Admin can deactivate or suspend user accounts if necessary.
- The Admin can reactivate previously suspended accounts.

23.Admin Manages Courses

- The Admin can view a list of all courses offered on the platform.
- The Admin can modify or delete courses.
- The Admin can assign or change instructors for courses.
- The Admin can monitor course enrollment and view enrollment statistics.
- The Admin can set course enrollment limits.
- The Admin can archive or temporarily hide courses.
- The Admin can review and approve/disapprove course content created by teachers.

24.Teacher Assigns Roles and Permissions

- The Teacher can define and manage user roles and permissions.
- The Teacher can create custom user roles with specific permissions.
- The Teacher can assign roles to users or groups of users.
- The Teacher can revoke or modify permissions for specific users or roles.
- The Teacher can track changes to roles and permissions.

25.Admin Reviews Reports and Analytics

- The Admin can access comprehensive reports and analytics on user activity, course engagement, and platform usage.
- The Admin can use analytics to identify trends, areas for improvement, and potential issues.

26.Admin Supports User

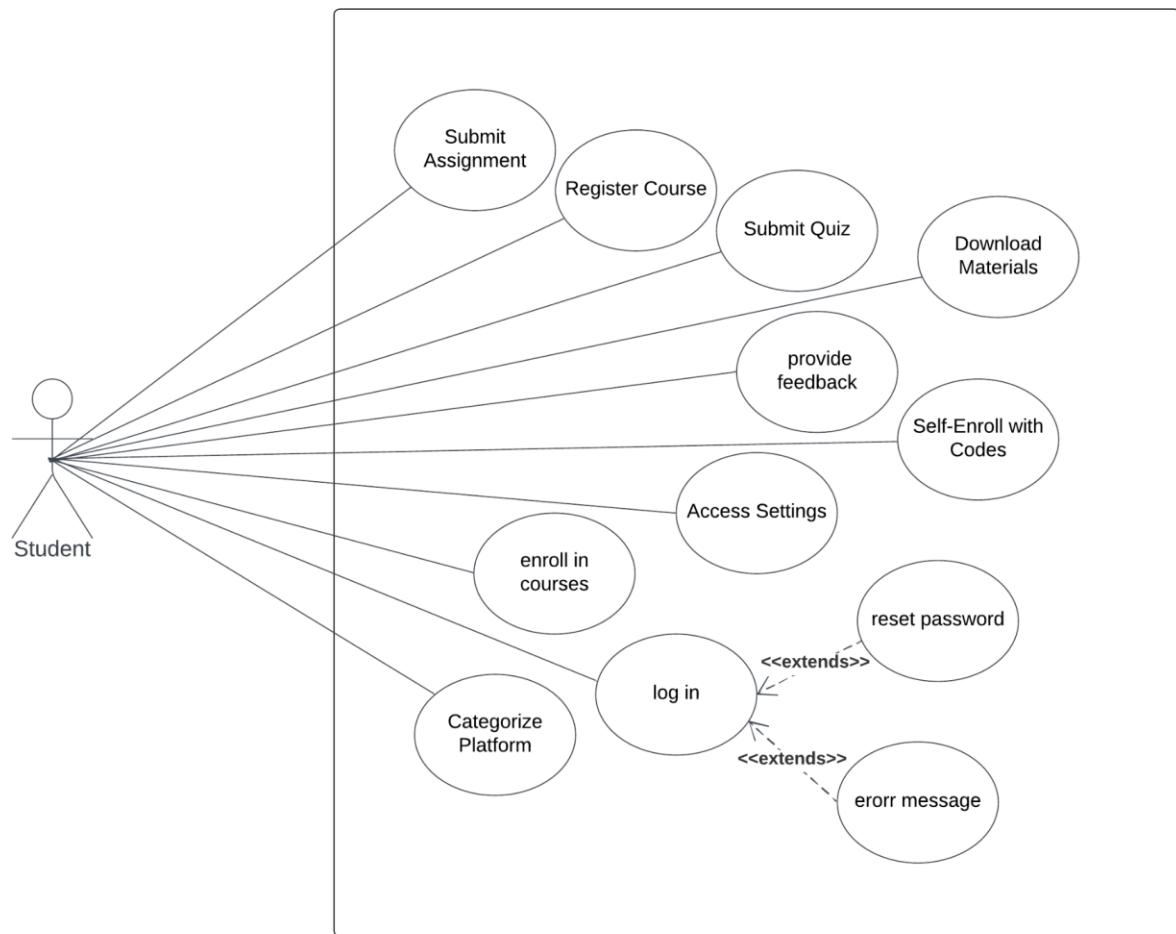
- The Admin can provide support to users, including responding to inquiries and troubleshooting issues.
- The Admin can access a support ticketing system to manage and resolve user-reported problems.

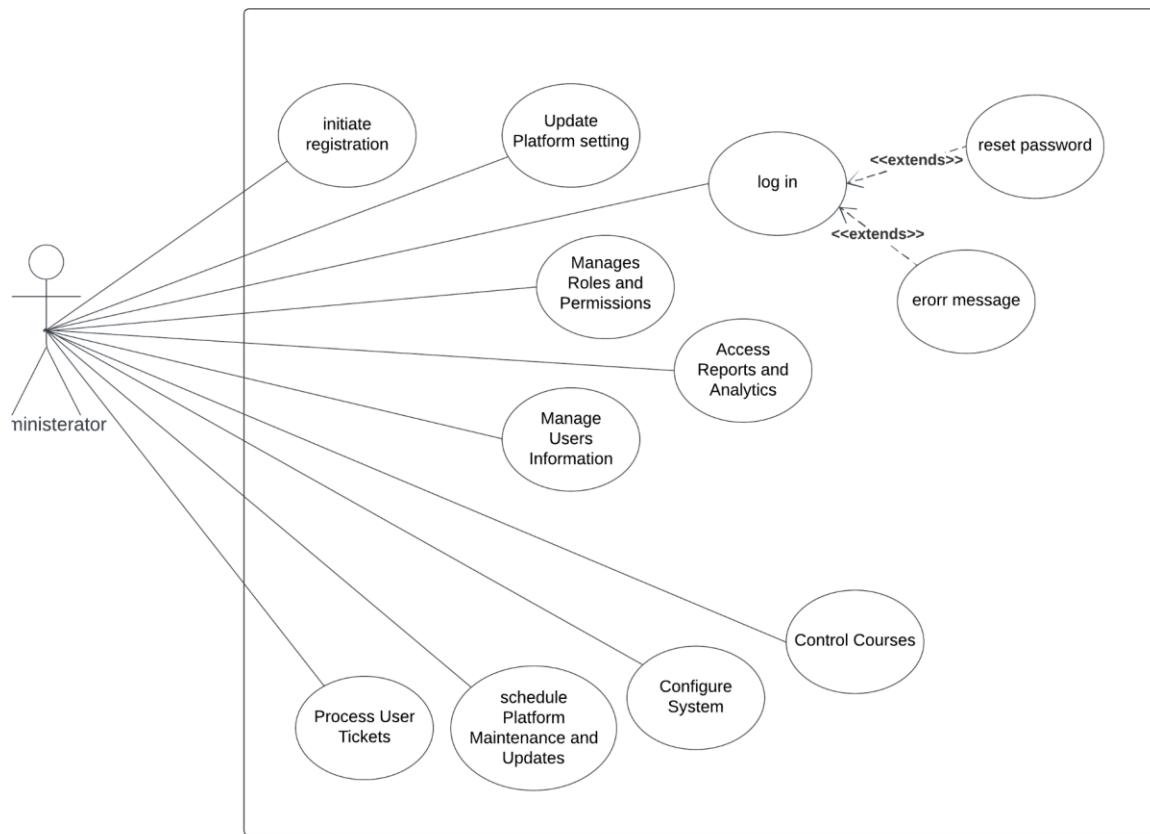
27.Admin Manages Platform Maintenance and Updates

- The Admin can schedule and perform routine maintenance tasks, including updates and backups.
- The Admin can ensure the platform remains up-to-date with the latest security patches and features.

Use Case Diagrams:







Use Case Description:

1: User Register:

Use case ID	Case 1	
Use Case Name	User Registration	
Actors	Student, teacher, Admin	
Pre-condition	None	
Post-condition	User is registered and can log in.	
Flow of events	User Action	System Action
	1. Users enter their username, email, and password.	
		1.1 system check the validation of the entered email, ensuring it is in the correct format and not already registered.
Exception scenario	Invalid email format or email already registered.	

2: User Login

Use case ID	Case 2	
Use Case Name	User Login	
Actors	Student, teacher, Admin	
Pre-condition	User is registered.	
Post-condition	User is logged into the platform.	
Flow of events	User Action	System Action
	1. Users enter their registered email and password.	
		1.2. System validate the entered credentials.
Exception scenario	Invalid login credentials.	

3: User Reset Password:

Use case ID	Case 3	
Use Case Name	Password Reset	
Actors	Student, teacher, Admin	
Pre-condition	User has a registered account.	
Post-condition	User can log in with a new password.	
Flow of Events	User Actions	System Actions
	1. User enter their email and click on the "Forgot Password" link.	
		1.1. System send a password reset link to the user's email.
	2. User receive the email and click on the reset link.	
		2.1. User is redirected to a page where they can create a new password.
	3. User enter a new password and confirms it.	
		3.1. The system update the user's password.
Exception scenario	Invalid or unregistered email address.	

4: Student Enroll in Course:

Use case ID	Case 4	
Use Case Name	Course Enrollment	
Actors	Student	
Pre-condition	Student is logged into their account.	
Post-condition	Student is enrolled in the course and can access course content.	
Flow of Events	User Actions	System Actions
	1. Student navigate to the course catalog or search feature.	
		1.1. System display the course to the student
	2. Student enter enrollment code or invitation link	
		2.1. System enroll the student in the course
Exception scenario	Course code or invitation link is not valid Or Course is at maximum enrollment capacity.	

5: Teacher Add Assignment:

Use case ID	Case 5	
Use Case Name	Assignment Creation	
Actors	Teacher	
Pre-condition	Teacher is logged into their account and accesses the course.	
Post-condition	Assignment is created and students are notified.	
Flow of Events	User Actions	System Actions
	1. Teacher provide assignment details, including title, description, and due date.	
	2. Teacher create the assignment.	1.1. The system notify enrolled students about the new assignment.
Exception scenario	None	

6: Student Submit Assignment:

Use case ID	Case 6	
Use Case Name	Assignment Submission	
Actors	Student	
Pre-condition	Student is logged into their account and access the course with an assignment.	
Post-condition	Assignment submission is recorded.	
Flow of Events	User Actions	System Actions
	1. Student navigate to the assignment submission section.	
		1.1.. System redirect him to the submission page
	2. Student upload their assignment file or enter text and submit it	
Exception scenario	The file size is too big or file format not supported	

7: Student Check Progress:

Use case ID	Case 7	
Use Case Name	Progress Tracking	
Actors	Student	
Pre-condition	Student is logged into their account and access the course.	
Post-condition	Student view their course progress.	
Flow of Events	User Actions	System Actions
	1. Student view the course progress dashboard.	
		1.1.. The system display completed and pending lectures and tasks.
	2. Student can track their progress and navigate to different course sections.	
Exception scenario	None	

8: Student Label and Categorization/Platform Organization:

Use case ID	Case 8	
Use Case Name	Content Organization	
Actors	Student	
Pre-condition	Student is logged into their account and have at least one enrolled course.	
Post-condition	Content is organized with clear labels and categories.	
Flow of Events	User Actions	System Actions
	1. Student access Organization tools	
		1.1.. The system provides labeling, categorization, and tagging features.
	2. User interacts with the content organization features to classify resources.	
Exception scenario	None	

9: Admin Creates Enrollment Option:

Use case ID	Case 9	
Use Case Name	Enrollment Creation (Access Code, Invitation Link)	
Actors	Admin	
Pre-condition	Admin is logged into their account and accesses the course management section.	
Post-condition	Enrollment Option is generated and can be shared with potential students.	
Flow of Events	User Actions	System Actions
	1. The Admin choose an enrollment options for the course.	
		1.1. System generates enrollment Option
	2. Admin share the enrollment option with potential students through email, messages, or the platform.	
Exception scenario	None	

10: Teacher Adds/Reuses Material:

Use case ID	Case 10	
Use Case Name	Material Management	
Actors	Teacher	
Pre-condition	Teacher is logged into their account and accesses the course materials section.	
Post-condition	Course materials are added or reused for the course.	
Flow of Events	User Actions	System Actions
	1. Teacher upload course materials (readings, videos, assignments) or reuses previously uploaded materials.	
		1.1. System apply the changes and save it in the database
Exception scenario	None	

11: Teacher Add Quiz:

Use case ID	Case 11	
Use Case Name	Quiz Creation	
Actors	Teacher	
Pre-condition	Teacher is logged into their account and accesses the course where they want to create a quiz.	
Post-condition	The quiz is published for students in the course.	
Flow of Events	User Actions	System Actions
	1. Teacher create a new quiz	
		1.1. The system notifies enrolled students about the new quiz.
Exception Scenarios	None	

12: Student Submit Quiz:

Use case ID	Case 12	
Use Case Name	Quiz Submission	
Actors	Student	
Pre-condition	Student is logged into their account and accesses the course with a quiz assignment.	
Post-condition	Quiz submission is recorded and awaits grading.	
Flow of Events	User Actions	System Actions
	1. Student enter the quiz	
		1.1. System redirect him to the quiz screen
	2. Student answer and submit the quiz.	
		2.1. The system record the submission and grades it.
Exception scenario	None	

13: Teacher Integrate YouTube Video

Use case ID	Case 13	
Use Case Name	YouTube Video Integration	
Actors	Teacher	
Pre-condition	Teacher is logged into their account and accesses the course where they want to include a YouTube video.	
Post-condition	The YouTube video is added to the course content.	
Flow of Events	User Actions	System Actions
	1. Teacher paste the YouTube video link (URL) into the provided field.	
		1.1. System validate the URL and fetches the video details.
		1.2. System add the YouTube video in the course content.
Exception scenario	Invalid or inaccessible YouTube video URL.	

14: User Access Settings

Use case ID	Case 14	
Use Case Name	Accessing User Settings	
Actors	Student, Teacher, Admin	
Pre-condition	User is logged into their account.	
Post-condition	User's settings are updated as per their preferences.	
Flow of Events	User Actions	System Actions
	1. User access account settings.	
		1.1. System display list of customization tools to the user
	2. Users customize aspects including profile information, privacy settings, notification preferences, language preferences, theme selection, accessibility settings, security settings, email preferences, and data management then save it.	
		2.1. System applies changes
Exception scenario	None	

15: Feedback Mechanisms

Use case ID	Case 15	
Use Case Name	Providing Feedback	
Actors	Student, Teacher	
Pre-condition	User is logged into their account.	
Post-condition	User feedback is collected for improvement.	
Flow of Events	User Actions	System Actions
	1. Users provide feedback through surveys, ratings, and open forums.	
		1.1. System record the provided feedback
	Exception scenario	
Exception scenario	None	

16: Assessment Tools/Teacher Dashboard

Use case ID	Case 16	
Use Case Name	Assessment and Dashboard	
Actors	Teacher	
Pre-condition	Teacher is logged into their account and has access to the course management section.	
Post-condition	Teachers can design, administer assessments and manage courses efficiently.	
Flow of Events	User Actions	System Actions
	1. Teacher Access Assessment Tools	
		1.1. System provide assessment tools, automated grading, feedback mechanisms, course modifications, and course analytics to teachers.
	2. Teacher design and administers quizzes, assignments, and assessments.	
		2.1. System will apply changes and save it in the database
Exception scenario	None	

17: Student Download Materials

Use case ID	Case 17	
Use Case Name	Downloading Course Materials	
Actors	Student	
Pre-condition	Student is logged into their account and accesses the course materials section.	
Post-condition	The selected course material is downloaded to the student's device.	
Flow of Events	User Actions	System Actions
	1. Student navigate to the "Course Materials" or "Resources" section of the course.	
		1.1. System will display the material list
	2. Within the material view, the student finds and clicks on the "Download" button/icon.	
		2.1. The system generate the downloaded file and save it in the user's device.
Exception scenario	The user device has insufficient space	

18: Admin Add User

Use case ID	Case 18	
Use Case Name	User Creation	
Actors	Admin	
Pre-condition	Admin is logged into their Admin account.	
Post-condition	User account is created	
Flow of Events	User Actions	System Actions
	1. Admin create a new user account	
		1.1. System save it in the database
Exception scenario	None	

19: Admin Update User Data

use case ID	Case 19	
Use Case Name	User Update	
Actors	Admin	
Pre-condition	Admin is logged into their Admin account.	
Post-condition	User accounts are updated according to Admin's actions.	
Flow of Events	User Actions	System Actions
	1. Admin view the platform users	
		1.1. System display the users in the platform
	2. Admin access individual user profiles to view and Update their information if necessary.	
		2.1. System apply the changes and save it in the database
Exception scenario	None	

20: Admin Delete User

Use case ID	Case 20	
Use Case Name	User Deletion	
Actors	Admin	
Pre-condition	Admin is logged into their Admin account.	
Post-condition	User accounts are deleted according to Admin's actions.	
Flow of Events	User Actions	System Actions
	1. Admin view the platform users	
		1.1. System display the users in the platform
2. Admin access individual user profiles to view and Delete their information if necessary.		
		2.1. System apply the changes and save it in the database
Exception scenario	None	

21: Admin Add Courses

Use case ID	Case 21	
Use Case Name	Course Creation	
Actors	Admin	
Pre-condition	Admin is logged into their Admin account.	
Post-condition	Course is Created	
Flow of Events	User Actions	System Actions
	1. Admin create the course and set it's limitation	
		1.1. System will save course to the database
Exception scenario	None	

22: Admin Update Courses

Use case ID	Case 22	
Use Case Name	Course Update	
Actors	Admin	
Pre-condition	Admin is logged into their Admin account.	
Post-condition	Course-related actions are executed according to the Admin's decisions.	
Flow of Events	User Actions	System Actions
	1. Admin Enter to the courses section	
		1.1. System will display list of all courses offered on the platform.
	2. Admin modify specific course.	
		2.1. System will apply the changes and save it
Exception scenario	None	

23: Admin Delete Courses

Use case ID	Case 23	
Use Case Name	Course Delete	
Actors	Admin	
Pre-condition	Admin is logged into their Admin account.	
Post-condition	Course-related actions are executed according to the Admin's decisions.	
Flow of Events	User Actions	System Actions
	1. Admin Enter to the courses section	
		1.1. System will display list of all courses offered on the platform.
	2. Admin select courses to delete it.	

	2.1. The system will delete it from database
Exception scenario	None

24: Admin Collect Reports and Analytics

Use case ID	Case 24	
Use Case Name	Reports and Analytics Gathering	
Actors	Admin	
Pre-condition	Admin is logged into their Admin account.	
Post-condition	Admins can make informed decisions based on the insights from reports and analytics.	
Flow of Events	User Actions	System Actions
	1. Admin Access Reports And Analytics	
		1.1. System collect comprehensive reports and analytics data on user activity, course engagement, and platform usage.
	2. Admin use analytics to identify trends, areas for improvement, and potential issues.	
Exception scenario	None	

25: Admin Monitor System Configuration

Use case ID	Case 25	
Use Case Name	System Configuration Monitor	
Actors	Admin	
Pre-condition	Admin is logged into their Admin account.	
Post-condition	Platform settings and configurations are adjusted based on Admin's actions.	
Flow of Events	User Actions	System Actions
	1. Admin configure system settings and parameters according to specific needs.	
		1.1. System apply the changes to the platform and save it
Exception scenario	None	

26: Admin Review Ticket

Use case ID	Case 26	
Use Case Name	Review Ticket	
Actors	Admin	
Pre-condition	Admin is logged into their Admin account.	
Post-condition	User ticket has been reviewed	
Flow of Events	User Actions	System Actions
	1. Admin access a ticketing system.	
		1.1. System offer the list of tickets to the admin
	2. Admin review the tickets and take an action.	
Exception scenario	None	

27: User Open Ticket

Use case ID	Case 27	
Use Case Name	User Ticket	
Actors	Student, Teacher	
Pre-condition	User is logged into their Admin account.	
Post-condition	Admin receive the ticket and be suspended until he review it	
Flow of Events	User Actions	System Actions
	1. User Create a new ticket and add it's details.	
Exception scenario		1.1. System will send the created ticket to the Admin to review it
	None	

28: Teacher Update Material:

Use case ID	Case 28	
Use Case Name	Material Update	
Actors	Teacher	
Pre-condition	Teacher is logged into their account and accesses the course materials section.	
Post-condition	Course materials are Updated for the course.	
Flow of Events	User Actions	System Actions
	1. Teacher Update course materials (readings, videos, assignments).	
		1.1. System apply the changes and save in the database
Exception scenario	None	

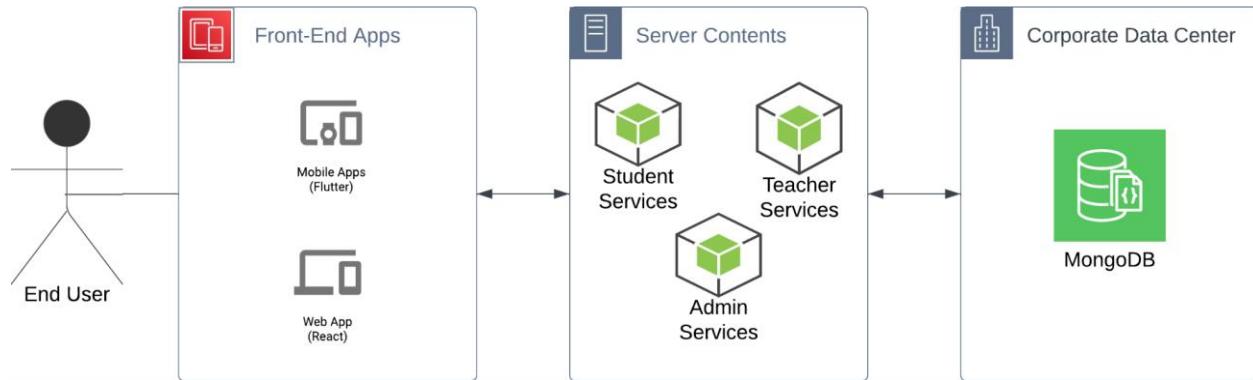
29: Teacher Delete Material:

Use case ID	Case 29	
Use Case Name	Material Deletion	
Actors	Teacher	
Pre-condition	Teacher is logged into their account and accesses the course materials section.	
Post-condition	Course materials are Deleted for the course.	
Flow of Events	User Actions	System Actions
	1. Teacher enter to the selected course	
		1.1. System display all the content of this course
	2. Teacher will select some materials to delete from the course	
		2.1. System will delete the it from the course and apply changes
Exception scenario	None	

30: Teacher Assign Rules

Use case ID	Case 30	
Use Case Name	Rules Assignment	
Actors	Teacher	
Pre-condition	Teacher is assigned to the course and Student is enrolled into the course	
Post-condition	Student rules updated	
Flow of Events	User Actions	System Actions
	1. Teacher Select specific student and assign rules to him	
		1.1. System save the updated rules
Exception scenario	None	

Architecture



For Academia, the System will be split Into a simple MVC architecture with some minimalistic microservices architecture. The three main modules are independent of each other and are based on XAPI guidelines.

- FrontEnd Applications would have their own hosting server that is independent of the other modules and both simply serve as the interface to receive the data from and manage data that may be on the client side (cookies, downloadable data, uploadable files)
- On the Server The technology utilised will be Node.js Express servers as our objects are JSON-based and databases are document-based, Node.js will provide more functionality and speed to manage our data efficiently. Each stakeholder will have access or their own service which will help separate important computing resources. A teacher would not use their services as much as a student so their services can receive less computing power, while an admin analytical services may cause a big load on the servers.
- The DataBase technology will be MongoDB-based as a NoSQL database will be more suitable for the specification by the XAPI guidelines and allows for easier scalability.

Given the requirements of Academia and the stated above architecture, Special attention should be given to the database schema to save different kinds of files and to specific features like language compatibility and client-side management of files.

Statement Example:

Statements are basically the main format for request bodies and responses and follow all the standards in this file.

Each statement have 4 main objects:

1. Actor, which is the user who created the statement.
2. Verb, What action did the user do
3. Object, the item that was created or affected by this statement and all metadata
4. Context, which hosts all miscellaneous data

<https://www.pythontanywhere.com/>

```
{
    "id": "fd41c918-b88b-4b20-a0a5-a4c32391aaa0",
    "timestamp": "2015-11-18T12:17:00+00:00",
    "actor": {
        "name": "John doe",
        "id": "5942f46c-50cf-4bbe-b447-fadd1be1c840"
    },
    "verb": {
        "id-enum": "verbs-took-exam",
        "display": {
            "en-US": "took an exam"
        }
    },
    "object": {
        "id": "5942f46c-50cf-4bbe-b447-fadd1be1c840",
        "objectType": "Activity",
        "definition": {
            "name": {
                "en-US": "simple CBT course"
            },
            "description": {
                "en-US": "A fictitious example CBT course."
            }
        }
    },
    "Context": {
        "result": {
            "score": {
                "scaled": "0.95"
            },
            "success": "true",
        }
    }
}
```

```
        "completion": "true",
        "duration": "PT12M34.15S"
    }
}
```

System IDs:

All system IDs should be [RFC](#)-compliant so as to be a UUID

Example: '60222bd9-85da-497b-bd58-7a2c68981c7b'

Resources to help:

<https://github.com/uuidjs/uuid>

<https://stackoverflow.com/questions/105034/how-do-i-create-a-guid-uuid>

To create a UUID using JavaScript, use the first code if you are in a modern browser and the second in other environments but the first has more security.

You can run those codes in the inspect feature to see the output for yourself.

```
function uuidv4() {
  return "10000000-1000-4000-8000-100000000000".replace(/[018]/g, c =>
    (c ^ crypto.getRandomValues(new Uint8Array(1))[0] & 15 >> c /
  4).toString(16)
  );
}
```

Or

```
function generateUUID() { // Public Domain/MIT
  var d = new Date().getTime(); //Timestamp
  var d2 = ((typeof performance !== 'undefined') && performance.now() &&
  (performance.now()*1000)) || 0; //Time in microseconds since page-load or 0 if
  unsupported
  return 'xxxxxxxx-xxxx-4xxx-yxxx-xxxxxxxxxxxx'.replace(/[xy]/g, function(c) {
    var r = Math.random() * 16; //random number between 0 and 16
    if(d > 0){ //Use timestamp until depleted
      r = (d + r)%16 | 0;
      d = Math.floor(d/16);
    } else { //Use microseconds since page-load if supported
      r = (d2 + r)%16 | 0;
      d2 = Math.floor(d2/16);
    }
    return (c === 'x' ? r : (r & 0x3 | 0x8)).toString(16);
  });
}
```

TimeStamps and durations:

All system timestamps should follow iso 8601 standards

Example: '2013-04-01T12:00:00Z'

Resources:

<https://github.com/adlnet/xAPI-Spec/blob/master/xAPI-Data.md#45-iso-8601-timestamps>

JavaScript example code below

```
const event = new Date('05 October 2011 14:48 UTC');
console.log(event.toString());
// Expected output: "Wed Oct 05 2011 16:48:00 GMT+0200 (CEST)"
// Note: your timezone may vary

console.log(event.toISOString());
// Expected output: "2011-10-05T14:48:00.000Z"

//Gets the current time in the user system
let timestamp = new Date().toISOString();
console.log(timestamp);
```

Durations of any event:

All durations should follow the ISO standard and they will be mostly used for Quizzes and assignments

Example	Explanation
PT4H35M59.14S	Four hours, thirty five minutes and 59.14 seconds.
PT16559.14S	The same time period as above represented in seconds. (Note: if the time period in question contained a leap second, this conversion would be inaccurate)
P3Y1M29DT4H35M59.14S	A Duration also including years, months and days.
P3Y	Approximately three years e.g. completion of a qualification.
P4W	Four weeks. Note that weeks cannot be combined with other time periods. 'P4W1D' is not valid.

Resources:

https://www.digi.com/resources/documentation/digidocs//90001488-13/reference/r_iso_8601_duration_format.htm

Javascript example code below

```
let timestamp1 = new Date("2023-10-04T13:25:48.284Z");
console.log(timestamp1);

let timestamp2 = new Date("2024-12-12T16:28:57.756Z");
console.log(timestamp2);

let timeDiff = new Date(timestamp2).getTime() - new
Date(timestamp1).getTime();
console.log(timeDiff)
console.log(turnIntoISODuration(timeDiff));
```

```
function turnIntoISODuration(duration){
    let durString = "P"
    let temp;

    temp = (timeDiff - (timeDiff % 31622400000)) / 31622400000; //Years
    timeDiff = timeDiff % 31622400000
    if(temp!=0){durString += temp + "Y";}

    temp = (timeDiff - (timeDiff % 2592000000)) / 2592000000; //Months
    timeDiff = timeDiff % 2592000000;
    if(temp!=0){durString += temp + "M";}

    temp = (timeDiff - (timeDiff % 604800000)) / 604800000; //Weeks
    timeDiff = timeDiff % 604800000;
    if(temp!=0){durString += temp + "W";}

    temp = (timeDiff - (timeDiff % 86400000)) / 86400000; //Days
    timeDiff = timeDiff % 86400000;
    if(temp!=0){durString += temp + "D";}

    if(timeDiff!=0){durString+="T"}

    temp = (timeDiff - (timeDiff % 3600000)) / 3600000; //Hours
    timeDiff = timeDiff % 3600000;
    if(temp!=0){durString += temp + "H";}

    temp = (timeDiff - (timeDiff % 60000)) / 60000; //Minutes
    timeDiff = timeDiff % 60000;
    if(temp!=0){durString += temp + "M";}

    temp = timeDiff / 1000; //Seconds
    if(temp!=0){durString += temp + "S";}

    return durString
}
```

Verbs id-enum:

Color coding for validation: user, admin, privileged user, server

Verb Enum/Action	Description
<code>sent-partial-course-data-successfully</code>	server
<code>request-denied</code>	server refuses a request and sends more info in the context object.
<code>get-privileges-list</code>	
<code>sent-system-privileges-list</code>	server
<code>create-user</code>	Used when creating a new account by a guest, not an admin.
<code>user-created-successfully</code>	server creates a new user and sends their info
<code>update-user</code>	
<code>user-updated-successfully</code>	server
<code>user-deleted-successfully</code>	server
<code>log-into-account</code>	The user attempts to log in
<code>admin-create-course</code>	admin
<code>course-created-successfully</code>	server
<code>admin-update-course</code>	admin
<code>course-updated-successfully</code>	server
<code>admin-delete-course</code>	admin
<code>course-deleted-successfully</code>	server
<code>admin-create-user</code>	admin
<code>admin-update-user</code>	admin
<code>admin-delete-user</code>	admin
<code>admin-request-course-code</code>	admin

enroll-in-course	
user-enrolled-successfully	server
user-get-courses	
sent-courses-data-successfully	server
user-get-users	
sent-users-data-successfully	server
user-get-posts	
sent-posts-data-successfully	server
user-get-comments	
sent-comments-data-successfully	server
user-get-materials	
sent-materials-data-successfully	server
privileged-user-posts-in-course	privileged user
post-created-successfully	server
privileged-user-update-post	privileged user
post-updated-successfully	server
privileged-user-delete-post	privileged user
post-deleted-successfully	server
privileged-user-comments-on-post	privileged user
comment-created-successfully	server
privileged-user-updates-comment	privileged user
comment-updated-successfully	server
privileged-user-deleted-comment	privileged user
comment-deleted-successfully	server
get-roles-list-in-course	

<code>get-privileges-list-for-user</code>	
<code>privileged-user-create-quiz-in-course</code>	privileged user
<code>quiz-created-successfully</code>	server
<code>access-quiz-in-course</code>	
<code>submit-quiz-in-course</code>	
<code>quiz-submitted-successfully</code>	server
<code>privileged-user-creates-role-in-course</code>	privileged user
<code>role-created-successfully</code>	server
<code>privileged-user-updates-role-in-course</code>	privileged user
<code>role-updates-successfully</code>	server
<code>privileged-user-delete-role-in-course</code>	privileged user
<code>role-deleted-successfully</code>	server
<code>privileged-user-assigns-role-in-course</code>	privileged user
<code>role-assigned-successfully</code>	server

Objects Enum:

Object Type	Meaning
Agent	A user
Activity	A Course/Post/Comment/Etc
Group	A group of objects

Material Type	Meaning
1	PDF
2	Excel, csv,etc
3	Word, docx, etc
4	Powerpoint
5	Code files, py, js, css, etc

Note: if a user tries to edit or delete an object and that user is the object creator, then he has full privileges.

Note: roles go from 0 upwards with 0 being the whole system admin and 1 being a course teacher.

Privilege	code	Description
create normal post	1	
Edit lower-level posts.	2	Edit posts of use with the same and lower-level roles
Delete lower-level posts.	3	Delete posts of users with the same and lower-level roles
Create poll	4	
Create quiz	5	
Comment on post	6	
Delete lower-level comments	7	Delete comments of users with the same and lower-level roles
Assign roles to lower-level users	8	Assign equal or lower level roles to users with lower level roles

Classes Object Example:

User:

```
"user":{  
    "name": "Ahmed Hamad",  
    "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
    "assignedId": "20200458",  
    "email": "ahmed459@gmail.com",  
    "avatar": "LINK",  
    "courses": ["4970e877-04f6-47d2-83aa-b43003beb9a1", "3f2c92a1-  
5e60-4305-83b2-ed9159d3deb1"]  
}
```

Course:

```
"course":{  
    "name": "intro to computers",  
    "code": "IS256",  
    "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
    "maxCapacity": "250",  
    "teachers":  
    ["3fc12698-ff06-41bd-b09d-d4ca01a49c4d", "cb4cb09f-95c8-41c5-aa33-  
329c35621825"],  
    "Posts": []  
}
```

Post:

```
"post":{  
    "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
    "courseId": "3303bb26-da01-4fb4-b8b1-9c60ec718507",  
    "postedBy": "ec1d1512-5712-4a22-99d8-161dc829fb2",  
    "postedOn": "2015-11-18T12:17:00+00:00",  
    "editedOn": "2015-11-18T12:17:00+00:00",  
    "content": "This is a very normal post",  
    "comments": [],  
    "materials": []  
}
```

Comment:

```
"comment":{  
    "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
    "postedBy": "ec1d1512-5712-4a22-99d8-161dc829fb2",  
    "postedOn": "2015-11-18T12:17:00+00:00",  
    "editedOn": "2015-11-18T12:17:00+00:00",  
    "replyingTo": "1df6a686-3be7-4fdf-9938-0e38b98f8400",  
    "content": "This is a comment"  
}
```

Role:

```
"role":{  
    "courseId": "ec1d1512-5712-4a22-99d8-161dc829fb2",  
    "roleCode": "269984",  
    "role": "T.A",  
    "level": "2",  
    "privileges": ["2", "3"]  
}
```

Privilege:

```
"privilege":{  
    "privilegeCode": "3",  
    "Description":  
    "Delete posts of users with the same and lower-level roles"  
}
```

Material:

```
"material":{  
    "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
    "courseId": "ec1d1512-5712-4a22-99d8-161dc829fb2",  
    "description": "This is a simple PDF",  
    "type": "5",  
    "URI": "LINK"  
}
```

Quiz:

```
"quiz":{  
    "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
    "courseId": "ec1d1512-5712-4a22-99d8-161dc829fb2",  
    "questions":  
        ["9a3bf4e3-6483-4eaf-a2bc-9aa204147073", "48df9c58-85a8-43b3-8640-  
        7aa2388a6b75"],  
    "retries": "5",  
    "duration": "PT1H",  
    "closeOn": "2015-11-18T12:17:00+00:00",  
    "showGradeAfter": "true",  
    "showWrongAnswersAfter": "true",  
    "showCorrectAnswersAfter": "false"  
}
```

Quiz question:

```
"quizQuestion":{  
    "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
    "question": " What methodology is iterative? ",  
    "options": ["waterfall", "Agile", "W3DT"],  
    "answer": "Agile",  
    "weight": "4"  
}
```

End Points Descriptions:

This List Will be Split on categories like “Authentication End points” and courses End points.
Each endpoint will have:

1. Its path
2. Its method
3. A small description.

1. Authentication End Points:

1.1. Login User

/auth/login

Post

Used by a user to log into the account and requires additional data in the body

2. Action Map End Points:

2.1. Get All Action Maps

/actionMap

Get

Returns a map of all the possible actions types which are expected in all API requests

2.2. Get Action Map Page

/actionMap?pageSize={PS}¤tPage={CP}

Get

Pagination for the Action map where PS and CP are integer inputs

2.3. Get Action Map By ID

/actionMap/{UUID}

Get

Get a Specific Action object where UUID is its ID

2.4. Add Action Map

/actionMap

Post

Adds a new Action/Verb to the System.

2.5. Update Action Map

/actionMap/{ UUID}

Put

Update a specific action to have a new meaning where UUID is its ID

2.6. Delete Action Map
/actionMap/{UUID}
Delete
Deletes a specific action from the system where UUID is its ID

3. Assignments End Points:

3.1. Get All Assignments
/assignments
Get
Returns all assignments in the system

3.2. Get Assignments Page
/ assignments?pageSize={PS}¤tPage={CP}
Get
Pagination for the assignments where PS and CP are integer inputs

3.3. Get assignments By ID
/ assignments /{UUID}
Get
Get a Specific Assignment where UUID is its ID

3.4. Add assignments
/ assignments
Post
Adds a new assignments to the System.

3.5. Update assignments
/ assignments /{ UUID}
Put
Update a specific assignments to have a new meaning where UUID is its ID

3.6. Delete assignments
/ assignments /{UUID}
Delete
Deletes a specific assignment from the system where UUID is its ID

4. Assignment User Info:

4.1. Get All AUI
/assignmentUserInfo
Get
Returns all assignmentUserInfo in the system

4.2. Get AUI Page

/assignmentUserInfo?pageSize={PS}¤tPage={CP}

Get

Pagination for the assignmentUserInfo where PS and CP are integer inputs

4.3. Get All AUI By Assignment ID

/assignmentUserInfo/assignment/{UUID}

Get

Returns all the submissions for a specific assignment

4.4. Get All AUI By user ID

/assignmentUserInfo/user/{UUID}

Get

Returns all the submissions from a specific user

4.5. Get All AUI By Coruse ID

/assignmentUserInfo/Course/{UUID}

Get

Returns all the Assignment submissions from a specific course

4.6. Add AUI

/assignmentUserInfo

Post

Adds a new assignment submission to the System.

4.7. Update AUI

/assignmentUserInfo/{ UUID}

Put

Update a specific assignment submission to have a new meaning where UUID is its ID

4.8. Delete AUI

/assignmentUserInfo/{UUID}

Delete

Deletes a specific assignment submission from the system where UUID is its ID

5. Course User Info:

5.1. Get All CUI

/courseUserInfo

Get

Returns all courseUserInfo in the system

5.2. Get CUI Page

/courseUserInfo?pageSize={PS}¤tPage={CP}

Get

Pagination for the courseUserInfo where PS and CP are integer inputs

5.3. Get All CUI By user ID

/courseUserInfo/user/{UUID}

Get

Returns all the courseUserInfo from a user which includes his roles in the course and feedback

5.4. Get All CUI By Course ID

/courseUserInfo /Course/{UUID}

Get

Returns all the courseUserInfo from a specific course

5.5. Add CUI

/courseUserInfo

Post

Adds a new courseUserInfo to the System.

5.6. Update CUI

/courseUserInfo /{UUID}

Put

Update a specific courseUserInfo to have a new meaning where UUID is its ID

5.7. Delete CUI

/courseUserInfo /{UUID}

Delete

Deletes a specific courseUserInfo from the system where UUID is its ID

6. Courses:

6.1. Get All Courses:

/courses

Get

Returns all courses in the system

6.2. Get Course By ID

/courses/{UUID}

Get

Returns a specific course where UUID is its ID

6.3. Search Courses

/courses?search={term}&sortBy={key}

Get

Returns all courses that matches the criteria by containing the {term} in its name or description and then sorting them based on the {key} which is course name or course code

6.4. Get All User Courses

/courses/user/{UUID}

Get

Returns all courses a user is enrolled in where UUID is the user's ID

6.5. Get All Course Students

/courses/{UUID} /students

Get

Returns all students that are enrolled in a specific course where UUID is the course ID

6.6. Get All Course Teachers

/courses/{UUID} /teachers

Get

Returns all teachers in a specific course where UUID is the course ID

6.7. Get Courses From IDs

/courses/getAll

Get

The body should contain a list of IDs which the end point will return all courses with said IDs if possible

6.8. Add Course

/courses

Post

The Admin can Add a Course by using this endpoint

6.9. Enroll In Course

/courses/enroll/{UUID}

Post

The body should contain the course's specific enrollment code. Allows a user to join a course where UUID is the course's ID

6.10. Unenroll In Course

/courses/unenroll/{UUID}

Post

The body should contain the course's specific enrollment code. Allows a user to join a course.

6.11. Update Course
/courses/{UUID}
Put
Allows an Admin/Teacher to update a course data. Where UUID is its ID

6.12. Delete Course By ID
/courses/{UUID}
Delete
Allows an Admin to delete a specific course from the system by its ID

7. Courses Poll

7.1. Get All coursePoll
/coursePoll
Get
Returns all coursePoll in the system

7.2. Get coursePoll By ID
/coursePoll/{UUID}
Get
Get a Specific coursePoll object where UUID is its ID

7.3. Add coursePoll
/coursePoll
Post
Adds a new coursePoll to the System.

7.4. Update coursePoll
/coursePoll/{ UUID}
Put
Update a specific coursePoll to have a new meaning where UUID is its ID

7.5. Delete coursePoll
/coursePoll/{UUID}
Delete
Deletes a specific coursePoll from the system where UUID is its ID

8. Courses Roles

8.1. Get All courseRoles
/ courseRoles
Get

Returns all courseRoles in the system

8.2. Get courseRoles By ID

/ courseRoles /{UUID}

Get

Get a Specific courseRoles object where UUID is its ID

8.3. Add courseRoles

/ courseRoles

Post

Adds a new courseRoles to the System.

8.4. Update courseRoles

/ courseRoles /{ UUID}

Put

Update a specific courseRoles to have a new meaning where UUID is its ID

8.5. Delete courseRoles

/ courseRoles /{UUID}

Delete

Deletes a specific courseRoles from the system where UUID is its ID

9. Users

9.1. Get All users:

/ users

Get

Returns all users in the system

9.2. Get users By ID

/ users /{UUID}

Get

Returns a specific users where UUID is its ID

9.3. Get users From IDs

/ users /getAll

Get

The body should contain a list of IDs which the end point will return all users with said IDs if possible

9.4. Search users

/ users?search={term}&sortBy={key}

Get

Returns all users that matches the criteria by containing the {term} in their names and then sorting them based on the {key} which is their name or ID

9.5. Update users

/ users /{UUID}

Put

Allows an Admin/Teacher to update a users data. Where UUID is its ID

9.6. Delete users By ID

/ users /{UUID}

Delete

Allows an Admin to delete a specific users from the system by its ID

10. Comments

10.1. Get All comments:

/ comments

Get

Returns all comments in the system

10.2. Get comments By ID

/ comments /{UUID}

Get

Returns a specific comment where UUID is its ID

10.3. Create Comment

/comments

Post

Allows the creation of a new comment under a parent post

10.4. Update comments

/ comments /{UUID}

Put

Allows the comment creator to update a comments data. Where UUID is its ID

10.5. Delete comments By ID

/ comments /{UUID}

Delete

Allows an Admin to delete specific comments from the system by its ID

11. Materials

11.1. Get All materials:

/ materials
Get
Returns all materials in the system

11.2. Get materials By ID
/ materials /{UUID}
Get
Returns a specific material where UUID is its ID

11.3. Create materials
/ materials
Post
Allows the creation of a new material object if all the data are provided

11.4. Update materials
/ materials /{UUID}
Put
Allows the materials creator to update a material's data. Where UUID is its ID

11.5. Delete materials By ID
/ materials /{UUID}
Delete
Allows an Admin to delete specific materials from the system by its ID

12. Materials Map

12.1. Get All materialMap:
/ materialMap
Get
Returns all materialMap in the system

12.2. Get materialMap By ID
/ materialMap /{UUID}
Get
Returns a specific materialMap where UUID is its ID

12.3. Create materialMap
/ materialMap
Post
Allows the creation of a new materialMap object if all the data are provided

12.4. Update materialMap
/ materialMap /{UUID}

Put

Allows the materialMap creator to update a material's data. Where UUID is its ID

12.5. Delete materialMap By ID

/ materialMap /{UUID}

Delete

Allows an Admin to delete specific materialMap from the system by its ID

13. Posts

13.1. Get All posts

/ posts

Get

Returns all posts in the system

13.2. Get posts By ID

/ posts /{UUID}

Get

Returns a specific posts where UUID is its ID

13.3. Create posts

/ posts

Post

Allows the creation of a new posts object if all the data are provided

13.4. Update posts

/ posts /{UUID}

Put

Allows the posts creator to update a material's data. Where UUID is its ID

13.5. Delete posts By ID

/ posts /{UUID}

Delete

Allows an Admin to delete specific posts from the system by its ID

14. Privileges

14.1. Get All privileges

/ privileges

Get

Returns all privileges in the system

14.2. Get privileges By ID

/ privileges /{UUID}

Get

Returns a privileges posts where UUID is its ID

14.3. Create privileges

/ privileges

Post

Allows the creation of a new privileges object if all the data are provided

14.4. Update privileges

/ privileges/{UUID}

Put

Allows the privileges creator to update a material's data. Where UUID is its ID

14.5. Delete privileges By ID

/ privileges/{UUID}

Delete

Allows an Admin to delete specific privileges from the system by its ID

15. Quizzes

15.1. Get All quizzes

/ quiz

Get

Returns all quizzes in the system

15.2. Get quizzes By ID

/ quiz/{UUID}

Get

Returns a specific quiz where UUID is its ID

15.3. Get All Course quizzes

/quiz/Course/{UUID}

Get

Returns all Quizzes in a specific course where UUID is the course ID

15.4. Create quiz

/ quiz

Post

Allows the creation of a new quiz object if all the data are provided

15.5. Update quiz

/ quiz/{UUID}

Put

Allows the quiz creator to update a material's data. Where UUID is its ID

15.6. Delete quiz By ID

/ quiz /{UUID}
Delete
Allows an Admin to delete specific quiz from the system by its ID

16. Questions

16.1. Get All questions

/ questions
Get
Returns all questions in the system

16.2. Get All quiz questions

/ questions/quiz?id={UUID}
Get
Returns all questions in a specific course where UUID is the course ID

16.3. Create questions

/ questions
Post
Allows the creation of a new quiz object if all the data are provided

16.4. Update questions

/ questions /{UUID}
Put
Allows the questions creator to update a material's data. Where UUID is its ID

16.5. Delete questions By ID

/ questions /{UUID}
Delete
Allows an Admin to delete specific questions from the system by its ID

17. Roles

17.1. Get All roles:

/ roles
Get
Returns all roles in the system

17.2. Get roles By ID

/ roles /{UUID}
Get
Returns a specific roles where UUID is its ID

17.3. Create roles

/ roles

Post

Allows the creation of a new roles object if all the data are provided

17.4. Update roles

/ roles /{UUID}

Put

Allows the materials creator to update a roles data. Where UUID is its ID

17.5. Delete roles By ID

/ roles /{UUID}

Delete

Allows an Admin to delete specific roles from the system by its ID

Some End Points Request Response Examples:

1. User Signs up

Type: Post

Path: [/users/sign-up](#)

Example request body:

```
{  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "Guest",  
        "id": "null"  
    },  
    "verb": {  
        "id-enum": "create-user",  
        "display": {  
            "en-US": "create user"  
        }  
    },  
    "object": {  
        "id": "null",  
        "objectType": "Agent",  
        "definition": {  
            "name": {  
                "en-US": "user data"  
            }  
        }  
    },  
},
```

```
"context":{  
    "name": "Ahmed Hamad",  
    "assignedId": "20200458",  
    "email": "ahmed459@gmail.com",  
    "password": "faa"  
}
```

Example response body:

```
{  
    "id": "cbb499a2-77cb-4a8f-9a1e-52ae0b80b81c",  
    "timestamp": "2015-11-18T12:19:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "null"  
    },  
    "verb": {  
        "id-enum": "user-created-successfully",  
        "display": {  
            "en-US": "new user been created"  
        }  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Agent",  
        "definition": {  
            "name": {  
                "en-US": "user Ahmed Hamad Data"  
            }  
        }  
    },  
    "context": {  
        "user": {  
            "name": "Ahmed Hamad",  
            "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
            "assignedId": "20200458",  
            "email": "ahmed459@gmail.com",  
            "avatar": "LINK",  
            "courses": []  
        }  
    }  
}
```


2. User Logging in

Type: Post

Path: `/users/login`

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "Guest",  
        "id": "null"  
    },  
    "verb": {  
        "id-enum": "log-into-account",  
        "display": {  
            "en-US": "log user"  
        }  
    },  
    "object": {  
        "id": "null",  
        "objectType": "Agent",  
        "definition": {  
            "name": {  
                "en-US": "user data"  
            }  
        }  
    },  
    "context": {  
        "assignedId": "20200458",  
        "email": "ahmed459@gmail.com",  
        "password": "faa"  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "null"  
    },  
    "verb": {  
        "id-enum": "log-into-account",  
        "display": {  
            "en-US": "logged in"  
        }  
    },  
    "object": {  
        "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
        "objectType": "Agent",  
        "definition": {  
            "name": {  
                "en-US": "user data"  
            }  
        }  
    },  
    "context": {  
        "assignedId": "20200458",  
        "email": "ahmed459@gmail.com",  
        "password": "faa"  
    }  
}
```

```
"verb":{  
    "id-enum":"login-successful",  
    "display":{  
        "en-US":"login authorised"  
    }  
,  
    "object":{  
        "id":"fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Agent",  
        "definition":{  
            "name":{  
                "en-US":"user data"  
            }  
        },  
        "context":{  
            "user":{  
                "name": "Ahmed Hamad",  
                "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
                "assignedId": "20200458",  
                "email": "ahmed459@gmail.com",  
                "avatar": "LINK",  
                "courses": ["4970e877-04f6-47d2-83aa-  
b43003beb9a1", "3f2c92a1-5e60-4305-83b2-ed9159d3deb1"]  
            }  
        }  
    }  
}
```

3. Admin Create course

Type: Post

Path: [/courses/create](#)

Details: only admins can create courses

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "Admin",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb":{  
        "id-enum": "admin-create-course",  
    },  
    "object":{  
        "id": "null",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US": "course Data"  
            }  
        }  
    },  
    "context":{  
        "course":{  
            "name": "intro to computers",  
            "code": "IS256",  
            "maxCapacity": "250",  
            "Teachers":  
                ["3fc12698-ff06-41bd-b09d-d4ca01a49c4d", "cb4cb09f-95c8-41c5-aa33-  
                329c35621825"]  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{
```

```
        "name": "server",
        "id": "null",
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"
    },
    "verb": {
        "id-enum": "course-created-successfully",
    },
    "object": {
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
        "objectType": "Activity",
        "definition": {
            "name": {
                "en-US": "Course Data"
            }
        }
    },
    "context": {
        "course": {
            "name": "intro to computers",
            "code": "IS256",
            "maxCapacity": "250",
            "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
            "enrollCode": "AGR456",
            "Teachers": [
                "3fc12698-ff06-41bd-b09d-d4ca01a49c4d", "cb4cb09f-95c8-41c5-aa33-329c35621825"
            ],
            "Posts": []
        },
        "users": [
            {"name": "Ahmed Hamad",
            "id": "3fc12698-ff06-41bd-b09d-d4ca01a49c4d",
            "assignedId": "null",
            "email": "ahmed459@gmail.com",
            "avatar": "LINK"},

            {"name": "ALI ALI",
            "id": "cb4cb09f-95c8-41c5-aa33-329c35621825",
            "assignedId": "null",
            "email": "ahmed459@gmail.com",
            "avatar": "LINK"}]
    }
}
```

4. Admin Update course

Type: Post

Path: [/courses/update](#)

Details: only admins can update courses meta data

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "Admin",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb":{  
        "id-enum": "admin-update-course",  
    },  
    "object":{  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US": "course Data"  
            }  
        }  
    },  
    "context":{  
        "course-update":{  
            "maxCapacity": "350",  
            "Teachers":  
                ["3fc12698-ff06-41bd-b09d-d4ca01a49c4d"]  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "server",  
        "id": "null",  
    }
```

```
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"
    },
    "verb": {
        "id-enum": "course-updated-successfully",
    },
    "object": {
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
        "objectType": "Activity",
        "definition": {
            "name": {
                "en-US": "Course Data"
            }
        }
    },
    "context": {
        "course": {
            "name": "intro to computers",
            "code": "IS256",
            "maxCapacity": "350",
            "currentStudents": "124",
            "enrollCode": "AGR456",
            "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
            "Teachers": [
                "3fc12698-ff06-41bd-b09d-d4ca01a49c4d"],
            "Posts": ["e792e71f-0660-4a63-809f-4bf4a26b4276"]
        },
        "users": [
            {"name": "Ahmed Hamad",
            "id": "3fc12698-ff06-41bd-b09d-d4ca01a49c4d",
            "assignedId": "null",
            "email": "ahmed459@gmail.com",
            "avatar": "LINK"},
            "Posts": [
                {
                    "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",
                    "courseId": "3303bb26-da01-4fb4-b8b1-9c60ec718507",
                    "postedBy": "ec1d1512-5712-4a22-99d8-161dc829fb2",
                    "postedOn": "2015-11-18T12:17:00+00:00",
                    "content": "This is a very normal post",
                    "comments": []
                }
            ]
        }
    }
}
```

5. Admin Delete Course

Type: Post

Path: [/courses/delete](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "Admin",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "delete-course",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "course Data"  
            }  
        }  
    },  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "course-deleted-successfully",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "course Data"  
            }  
        }  
    }  
}
```

```
        "name":{  
            "en-US":"Course Data"  
        }  
    }  
}
```

6. Admin View course code

Type: Post

Path: [/courses/admin-enroll-code](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "User",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "admin-request-course-code",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "course Data enroll code"  
            }  
        }  
    },  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-partial-course-data",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "enrollCode": "ARG456",  
        "objectType": "Activity",  
    }  
}
```

```
"definition":{  
    "name":{  
        "en-US":"Course Data enroll code"  
    }  
}  
}  
}
```

7. Admin Create user

Type: Post

Path: `/users/super-create`

Details: admin specific endpoint

Example request body:

```
{
    "timestamp": "2015-11-18T12:17:00+00:00",
    "actor": {
        "name": "Admin",
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",
    },
    "verb": {
        "id-enum": "admin-create-user",
    },
    "object": {
        "id": "null",
        "objectType": "Agent",
        "definition": {
            "name": {
                "en-US": "course Data"
            }
        }
    },
    "context": {
        "user": {
            "name": "Ahmed Hamad",
            "assignedId": "20200458",
            "email": "ahmed459@gmail.com",
            "avatar": "LINK",
            "courses": ["4970e877-04f6-47d2-83aa-b43003beb9a1", "3f2c92a1-5e60-4305-83b2-ed9159d3deb1"]
        }
    }
}
```

Expected response:

```
{  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "user-created-successfully",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Agent",  
        "definition": {  
            "name": {  
                "en-US": "User Data"  
            }  
        }  
    },  
    "context": {  
        "user": {  
            "name": "Ahmed Hamad",  
            "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
            "assignedId": "20200458",  
            "email": "ahmed459@gmail.com",  
            "avatar": "LINK",  
            "courses": [ "4970e877-04f6-47d2-83aa-b43003beb9a1", "3f2c92a1-5e60-4305-83b2-ed9159d3deb1" ]  
        }  
    }  
}
```

8. Admin Update user

Type: Post

Path: [/users/super-update](#)

Details: admin specific endpoint

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "Admin",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb":{  
        "id-enum": "admin-update-user",  
    },  
    "object":{  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Agent",  
        "definition":{  
            "name":{  
                "en-US": "User Data"  
            }  
        }  
    },  
    "context":{  
        "user":{  
            "assignedId": "20200987",  
            "courses": [ "4970e877-04f6-47d2-83aa-b43003beb9a1" ]  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    }
```

```
},
"verb": {
    "id-enum": "user-created-successfully",
},
"object": {
    "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
    "objectType": "Agent",
    "definition": {
        "name": {
            "en-US": "Updated User Data"
        }
    }
},
"context": {
    "user": {
        "name": "Ahmed Hamad",
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
        "assignedId": "20200987",
        "email": "ahmed459@gmail.com",
        "avatar": "LINK",
        "courses": [ "4970e877-04f6-47d2-83aa-b43003beb9a1" ]
    }
}
}
```

9. Admin Delete user

Type: Post

Path: [/users/super-update](#)

Details: admin specific endpoint

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "Admin",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb":{  
        "id-enum": "admin-delete-user",  
    },  
    "object":{  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Agent",  
        "definition":{  
            "name":{  
                "en-US": "User"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb":{  
        "id-enum": "user-deleted-successfully",  
    },  
    "object":{  
        "id": "null",  
        "objectType": "Agent",  
    }  
}
```

```
"definition":{  
    "name":{  
        "en-US":"deleted User Data"  
    }  
}  
}  
}
```

10. User updates profile

Type: Post

Path: `/users/update`

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "user",  
        "id": "5290a046-7f1f-4af4-9923-280f835df685",  
    },  
    "verb": {  
        "id-enum": "update-user",  
    },  
    "object": {  
        "id": "5290a046-7f1f-4af4-9923-280f835df685",  
        "objectType": "Agent",  
        "definition": {  
            "name": {  
                "en-US": "User Data"  
            }  
        }  
    },  
    "context": {  
        "user": {  
            "assignedId": "20200987",  
            "password": "FSHteg45@#",  
            "courses": ["4970e877-04f6-47d2-83aa-b43003beb9a1"]  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    }
```

```
},
"verb": {
    "id-enum": "user-updated-successfully",
},
"object": {
    "id": "5290a046-7f1f-4af4-9923-280f835df685",
    "objectType": "Agent",
    "definition": {
        "name": {
            "en-US": "Updated User Data"
        }
    }
},
"context": {
    "user": {
        "name": "Ahmed Hamad",
        "id": "5290a046-7f1f-4af4-9923-280f835df685",
        "assignedId": "20200987",
        "email": "ahmed459@gmail.com",
        "avatar": "LINK",
        "password": "FSHteg45@#",
        "courses": [ "4970e877-04f6-47d2-83aa-b43003beb9a1" ]
    }
}
}
```

11. Enroll in a course

Type: Post

Path: [/course/enroll](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "enroll-in-course",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "Course"  
            }  
        }  
    },  
    "context": {  
        "enrollCode": "ARG456"  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "user-enrolled-successfully",  
    },  
    "object": {
```

```
"id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
"objectType": "Activity",
"definition": {
    "name": {
        "en-US": "Added user to course"
    }
}
}
```

12. Get Course by ID

Type: Post

Path: [/courses/course/{id}](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "User",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "user-get-courses",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "course Data"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-courses-data-successfully",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "course Data"  
            }  
        }  
    }  
}
```

```
        "en-US":"Course Data"
    }
}
},
"context":{
    "courses":{
        "name":"intro to computers",
        "code":"IS256",
        "maxCapacity":"350",
        "currentStudents":"124",
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
        "Teachers":
        ["3fc12698-ff06-41bd-b09d-d4ca01a49c4d"],
        "Posts":[ "e792e71f-0660-4a63-809f-4bf4a26b4276"]
    },
    "users":[
        {"name":"Ahmed Hamad",
        "id": "3fc12698-ff06-41bd-b09d-d4ca01a49c4d",
        "assignedId":"null",
        "email":"ahmed459@gmail.com",
        "avatar": "LINK"}],
    "posts":[{{
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",
        "courseId": "3303bb26-da01-4fb4-b8b1-9c60ec718507",
        "postedBy": "ec1d1512-5712-4a22-99d8-161dc829fdb2",
        "postedOn": "2015-11-18T12:17:00+00:00",
        "content": "This is a very normal post",
        "comments": []
    }}]
}
}
```

13. Get courses by user

Type: Post

Path: [/courses/user](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "User",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "user-get-courses",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "user courses Data"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-courses-data-successfully",  
    },  
    "object": {  
        "id":  
        ["fb6fe636-d462-4ccf-ad3e-b8a132a254f8", "45fe3144-fc70-49ef-9392-  
        c51bd25a4cb9"],  
        "objectType": "Group",  
    }  
}
```

```

"definition": {
    "name": {
        "en-US": "user Courses Data"
    }
},
"context": {
    "courses": [
        {
            "name": "intro to computers",
            "code": "IS256",
            "maxCapacity": "350",
            "currentStudents": "124",
            "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
            "Teachers": [
                "3fc12698-ff06-41bd-b09d-d4ca01a49c4d"
            ],
            "Posts": [
                "e792e71f-0660-4a63-809f-4bf4a26b4276"
            ],
            "name": "Math 3",
            "code": "CS459",
            "maxCapacity": "350",
            "currentStudents": "264",
            "id": "45fe3144-fc70-49ef-9392-c51bd25a4cb9",
            "Teachers": [
                "3fc12698-ff06-41bd-b09d-d4ca01a49c4d"
            ],
            "Posts": [
                "e792e71f-0660-4a63-809f-4bf4a26b4276"
            ]
        }
    ],
    "users": [
        {
            "name": "Ahmed Hamad",
            "id": "3fc12698-ff06-41bd-b09d-d4ca01a49c4d",
            "assignedId": "null",
            "email": "ahmed459@gmail.com",
            "avatar": "LINK"
        }
    ],
    "posts": [
        {
            "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",
            "courseId": "3303bb26-da01-4fb4-b8b1-9c60ec718507",
            "postedBy": "ec1d1512-5712-4a22-99d8-161dc829fb2",
            "postedOn": "2015-11-18T12:17:00+00:00",
            "content": "This is a very normal post",
            "comments": []
        }
    ]
}
}

```

14. Get User by ID

Type: Post

Path: `/users/user/{id}`

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "User",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "user-get-users",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Agent",  
        "definition": {  
            "name": {  
                "en-US": "User Data"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-users-data-successfully",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Agent",  
        "definition": {  
            "name": {  
                "en-US": "User Data"  
            }  
        }  
    }  
}
```

```
        "en-US":"user ahmed hamad Data"
    }
}
},
"context":{
    "user": {"name": "Ahmed Hamad",
              "id": "3fc12698-ff06-41bd-b09d-d4ca01a49c4d",
              "assignedId": "20200958",
              "email": "ahmed459@gmail.com",
              "avatar": "LINK",
              "role": "3"}
}
}
```

15. Get Users by course

Type: Post

Path: [/users/course](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "User",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "user-get-users",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "Course"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-users-data-successfully",  
    },  
    "object": {  
        "id": ["fb6fe636-d462-4ccf-ad3e-b8a132a254f8", "f6699e7d-78c0-  
4d21-b705-a3312f3b7a26"],  
        "objectType": "Group",  
        "definition": {  
            "name": {  
                "en-US": "Course"  
            }  
        }  
    }  
}
```

```
        "name":{  
            "en-US":"users Data"  
        }  
    },  
    "context":{  
        "course":{  
            "name":"intro to computers",  
            "code":"IS256",  
            "maxCapacity":"350",  
            "currentStudents":"124",  
            "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
            "Teachers":  
                ["3fc12698-ff06-41bd-b09d-d4ca01a49c4d"],  
                "Posts":["e792e71f-0660-4a63-809f-4bf4a26b4276"]  
        },  
        "users": [  
            {"name":"Ahmed Hamad",  
            "id": "3fc12698-ff06-41bd-b09d-d4ca01a49c4d",  
            "assignedId":"2045788",  
            "email":"ahmed459@gmail.com",  
            "avatar": "LINK",  
            "role":"2"},  
            {"name":"Ali Gamal",  
            "id": "81982440-64a7-4bd7-8336-ca3926575a73",  
            "assignedId":"2031958",  
            "email":"ALIALI9@gmail.com",  
            "avatar": "LINK",  
            "role":"4"}],  
    }  
}
```

16. Get Post by ID

Type: Post

Path: [/posts/post/{id}](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "User",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "user-get-posts",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "post Data"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-posts-data-successfully",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "post Data"  
            }  
        }  
    }  
}
```

```
        "en-US": "post Data"
    }
}
},
"context": {
    "post": {
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",
        "courseId": "3303bb26-da01-4fb4-b8b1-9c60ec718507",
        "postedBy": "ec1d1512-5712-4a22-99d8-161dc829fdb2",
        "postedOn": "2015-11-18T12:17:00+00:00",
        "content": "This is a very normal post",
        "comments": []
    }
}
}
```

17. Get Posts by parent Course

Type: Post

Path: [/posts/course](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "User",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "user-get-posts",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "course id"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-posts-data-successfully",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "course id"  
            }  
        }  
    }  
}
```

```
        "en-US": "posts Data"
    }
}
},
"context": {
    "post": [
        {
            "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",
            "courseId": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
            "postedBy": "ec1d1512-5712-4a22-99d8-161dc829fdb2",
            "postedOn": "2015-11-18T12:17:00+00:00",
            "content": "This is a very normal post",
            "comments": []
        },
        {
            "id": "'ca682c82-801f-4250-8a65-dd40b167f3da'",
            "courseId": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
            "postedBy": "ec1d1512-5712-4a22-99d8-161dc829fdb2",
            "postedOn": "2015-11-18T12:17:00+00:00",
            "content": "This is NOT A very normal post",
            "comments": []
        }
    ]
}
```

18. Get Comment by ID

Type: Post

Path: [/comments/comment/{id}](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "User",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "user-get-comments",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "comment id"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-comments-data-successfully",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "comment id"  
            }  
        }  
    }  
}
```

```
        "en-US": "comment Data"
    }
}
},
"context": {
    "comment": {
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
        "postedBy": "ec1d1512-5712-4a22-99d8-161dc829fdb2",
        "postedOn": "2015-11-18T12:17:00+00:00",
        "replyingTo": "1df6a686-3be7-4fdf-9938-0e38b98f8400",
        "content": "This is a comment"
    }
}
}
```

19. Get comments by parent post

Type: Post

Path: [/comments/post](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "User",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "user-get-comments",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "post id"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-comments-data-successfully",  
    },  
    "object": {  
        "id": [ "fb6fe636-d462-4ccf-ad3e-b8a132a254f8", "ab975d18-59f9-  
4639-abf5-44e7d0059622" ],  
        "objectType": "Group",  
        "definition": {  
    }
```

```
        "name":{  
            "en-US":"comments Data"  
        }  
    },  
    "context":{  
        "comment":[{  
            "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
            "postedBy": "ec1d1512-5712-4a22-99d8-161dc829fdb2",  
            "postedOn": "2015-11-18T12:17:00+00:00",  
            "replyingTo": "1df6a686-3be7-4fdf-9938-0e38b98f8400",  
            "content": "This is a comment"  
        },  
        {  
            "id": "ab975d18-59f9-4639-abf5-44e7d0059622",  
            "postedBy": "ec1d1512-5712-4a22-99d8-161dc829fdb2",  
            "postedOn": "2015-11-18T12:17:00+00:00",  
            "replyingTo": "1df6a686-3be7-4fdf-9938-0e38b98f8400",  
            "content": "This is a second comment"  
        }]  
    }  
}
```

20. Get material by ID

Type: Post

Path: [/material/material/{id}](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "User",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "user-get-materials",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "material data id"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-materials-data-successfully",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "material data id"  
            }  
        }  
    }  
}
```

```
        "en-US":"material Data"
    }
}
},
"context":{
    "material":{
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",
        "courseId":"ec1d1512-5712-4a22-99d8-161dc829fb2",
        "description":"This is a simple pdf",
        "type": "1",
        "URI":"LINK"
    }
}
}
```

21. Get material by parent post

Type: Post

Path: [/material/post](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "User",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "user-get-materials",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "post id"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-materials-data-successfully",  
    },  
    "object": {  
        "id": [ "fb6fe636-d462-4ccf-ad3e-b8a132a254f8", "370b8241-484b-  
4314-af76-58dc309ddb8" ],  
        "objectType": "Group",  
        "definition": {  
    }
```

```
        "name":{  
            "en-US":"material Data"  
        }  
    },  
    "context":{  
        "material":[{  
            "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
            "courseId":"ec1d1512-5712-4a22-99d8-161dc829fdb2",  
            "description":"This is a simple pdf",  
            "type": "1",  
            "URI":"LINK"  
        },  
        {  
            "id": "370b8241-484b-4314-af76-58dcb309ddb8",  
            "courseId":"ec1d1512-5712-4a22-99d8-161dc829fdb2",  
            "description":"This is a simple pdf number 2",  
            "type": "1",  
            "URI":"LINK"  
        }]  
    }  
}
```

22. Create Post in a course

Type: Post

Path: [/courses/{id}/create-post](#)

Details: only privileged user can create posts

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb":{  
        "id-enum": "privileged-user-posts-in-course",  
    },  
    "object":{  
        "id": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US": "course Data"  
            }  
        }  
    },  
    "context":{  
        "post":{  
            "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
            "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
            "postImmediately": "no",  
            "postOn": "2015-11-18T12:17:00+00:00",  
            "content": "This is a very normal post",  
            "materials":  
                ["215d6356-e25b-45a1-9d34-a0a144544c64", "542d57ad-7bc3-4dab-8ae8-  
                0916467680ef"]  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb":{  
        "id-enum": "privileged-user-posts-in-course",  
    },  
    "object":{  
        "id": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US": "course Data"  
            }  
        }  
    },  
    "context":{  
        "post":{  
            "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
            "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
            "postImmediately": "no",  
            "postOn": "2015-11-18T12:17:00+00:00",  
            "content": "This is a very normal post",  
            "materials":  
                ["215d6356-e25b-45a1-9d34-a0a144544c64", "542d57ad-7bc3-4dab-8ae8-  
                0916467680ef"]  
        }  
    }  
}
```

```
"actor":{  
    "name": "server",  
    "id": "null",  
    "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
},  
"verb":{  
    "id-enum": "course-created-successfully",  
},  
"object":{  
    "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
    "objectType": "Activity",  
    "definition":{  
        "name":{  
            "en-US": "Post Data"  
        }  
    },  
},  
"context":{  
    "post":{  
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
        "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
        "postedBy": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
        "postedOn": "2015-11-18T12:17:00+00:00",  
        "content": "This is a very normal post",  
        "comments": [],  
        "materials":  
            ["fb6fe636-d462-4ccf-ad3e-b8a132a254f8", "370b8241-484b-4314-af76-58dcb309ddb8"]  
    },  
    "materials": [{  
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
        "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
        "description": "This is a simple pdf",  
        "type": "1",  
        "URI": "LINK"  
    },  
    {  
        "id": "370b8241-484b-4314-af76-58dcb309ddb8",  
        "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
        "description": "This is a simple pdf number 2",  
        "type": "1",  
        "URI": "LINK"  
    }]  
}
```

```
    }  
}
```

23. Update Post in a course

Type: Post

Path: [/courses/{id}/update-post/{id}](#)

Details: users who created the post can edit it.

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb":{  
        "id-enum":"privileged-user-update-post",  
    },  
    "object":{  
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US": "Post Data"  
            }  
        },  
    },  
    "context":{  
        "post":{  
            "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
            "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
            "content": "This is an edited post post"  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
}
```

```
"verb":{  
    "id-enum":"post-updated-successfully",  
,  
    "object":{  
        "id":"e792e71f-0660-4a63-809f-4bf4a26b4276",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US":"Post Data"  
            }  
        }  
    },  
    "context":{  
        "post":{  
            "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
            "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
            "postedBy": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
            "postedOn": "2015-11-18T12:17:00+00:00",  
            "editedOn": "2015-11-18T12:17:00+00:00",  
            "content": "This is an edited post post",  
            "comments":[],  
            "materials":  
                ["fb6fe636-d462-4ccf-ad3e-b8a132a254f8", "370b8241-484b-4314-af76-  
58dcb309ddb8"]  
            },  
            "materials":[{  
                "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
                "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
                "description": "This is a simple pdf",  
                "type": "1",  
                "URI": "LINK"  
            },  
            {  
                "id": "370b8241-484b-4314-af76-58dcb309ddb8",  
                "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
                "description": "This is a simple pdf number 2",  
                "type": "1",  
                "URI": "LINK"  
            }]  
        }  
    }  
}
```

24. Delete Post in a course

Type: Post

Path: [/courses/{id}/delete-post/{id}](#)

Details: users who created the post can edit it.

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb":{  
        "id-enum":"privileged-user-delete-post",  
    },  
    "object":{  
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US": "Post Data"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb":{  
        "id-enum": "post-deleted-successfully",  
    },  
    "object":{  
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US": "Post Data"  
            }  
        }  
    }  
}
```

```
        "name":{  
            "en-US":"Post Data"  
        }  
    }  
}
```

25. User Comments on a post

Type: Post

Path: [/posts/{id}](#)

Details: only privileged user can comment on posts

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "privileged-user-comments-on-post",  
    },  
    "object": {  
        "id": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "Post Data"  
            }  
        },  
    },  
    "context": {  
        "comment": {  
            "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
            "postedBy": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
            "postedOn": "2015-11-18T12:17:00+00:00",  
            "content": "This is a comment"  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    }
```

```
},
"verb": {
    "id-enum": "comment-created-successfully",
},
"object": {
    "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",
    "objectType": "Activity",
    "definition": {
        "name": {
            "en-US": "Post Data"
        }
    }
},
"context": {
    "comment": {
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",
        "postedBy": "4970e877-04f6-47d2-83aa-b43003beb9a1",
        "postedOn": "2015-11-18T12:17:00+00:00",
        "content": "This is a comment"
    }
}
}
```

26. User updates a comment

Type: Post

Path: [/posts/{id}/update-comment/{id}](#)

Details: only privileged users can edit comments

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "privileged-user-updates-comment",  
    },  
    "object": {  
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "Comment Data"  
            }  
        },  
    },  
    "context": {  
        "comment": {  
            "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
            "postedBy": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
            "postedOn": "2015-11-18T12:17:00+00:00",  
            "content": "This is an edited comment"  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    }
```

```
},
"verb": {
    "id-enum": "comment-updated-successfully",
},
"object": {
    "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",
    "objectType": "Activity",
    "definition": {
        "name": {
            "en-US": "Post Data"
        }
    }
},
"context": {
    "comment": {
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",
        "postedBy": "4970e877-04f6-47d2-83aa-b43003beb9a1",
        "postedOn": "2015-11-18T12:17:00+00:00",
        "content": "This is an edited comment",
        "editedOn": "2015-11-18T12:17:00+00:00",
    }
}
}
```

27. Used deletes a comment

Type: Post

Path: `/posts/{id}/delete-comment/{id}`

Details: only privileged users can delete comments

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb":{  
        "id-enum": "privileged-user-deletes-comment",  
    },  
    "object":{  
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US": "Comment Data"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb":{  
        "id-enum": "comment-deleted-successfully",  
    },  
    "object":{  
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US": "Comment Data"  
            }  
        }  
    }  
}
```

```
        "name":{  
            "en-US":"Post Data"  
        }  
    }  
}
```

28. Get Roles List in course

Type: Post

Path: [/course/{id}/roles](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "Id-enum": "get-roles-list-in-course",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "Course Data"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-partial-course-data-successfully",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "Course Data"  
            }  
        }  
    }  
}
```

```
        "en-US":"Course Role list"
    }
}
},
"context":{
    "roles":[{
        "courseId": "ec1d1512-5712-4a22-99d8-161dc829fbd2",
        "roleCode": "269984",
        "role": "T.A",
        "level": "2",
        "privileges": ["2","3"]
    },{
        "courseId": "ec1d1512-5712-4a22-99d8-161dc829fbd2",
        "roleCode": "546789",
        "role": "Teacher",
        "level": "1",
        "privileges": ["1","2","3","4",5,"6"]
    }],
    "privileges":[{
        "privilegeCode": "3",
        "Description":
            "Delete posts of users with the same and lower-level roles"
    },{
        "privilegeCode": "2",
        "Description":
            "Edit posts of use with the same and lower-level roles"
    },....]
}
}
```

29. Get Privileges list

Type: Post

Path: [/privileges/list](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "get-privileges-list",  
    },  
    "object": {  
        "id": "null",  
        "objectType": "Activity"  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-system-privileges-list",  
    },  
    "object": {  
        "id": "null",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "system privileges list"  
            }  
        }  
    },  
    "context": {  
        "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
        "timestamp": "2015-11-18T12:17:00+00:00",  
        "actor": {  
            "name": "server",  
            "id": "null",  
            "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
        },  
        "verb": {  
            "id-enum": "sent-system-privileges-list",  
        },  
        "object": {  
            "id": "null",  
            "objectType": "Activity",  
            "definition": {  
                "name": {  
                    "en-US": "system privileges list"  
                }  
            }  
        }  
    }  
}
```

```
"privileges": [{  
    "privilegeCode": "3",  
    "Description":  
        "Delete posts of users with the same and lower-level  
        roles"  
    }, {  
        "privilegeCode": "2",  
        "Description":  
            "Edit posts of use with the same and lower-level roles"  
    }, .....]  
}  
}
```

30. Get privileges list by course and user

Type: Post

Path: [/course/{id}/Privileges](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "get-privileges-list-for-user",  
    },  
    "object": {  
        "id":  
            ["e792e71f-0660-4a63-809f-4bf4a26b4276", "4970e877-04f6-47d2-83aa-  
            b43003beb9a1"],  
        "objectType": "Group",  
        "definition": {  
            "name": {  
                "en-US": "Course and user Data"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-partial-course-data-successfully",  
    },  
    "object": {  
        "id":  
            ["e792e71f-0660-4a63-809f-4bf4a26b4276", "4970e877-04f6-47d2-83aa-  
            b43003beb9a1"]  
    }  
}
```

```
b43003beb9a1"],
    "objectType": "Group",
    "definition":{
        "name":{
            "en-US":"Course and user Data"
        }
    },
    "context":{
        "privileges"::[
            {
                "privilegeCode": "3",
                "Description":
                    "Delete posts of users with the same and lower-level
roles"
            },
            {
                "privilegeCode": "2",
                "Description":
                    "Edit posts of use with the same and lower-level roles"
            }
        ]
    }
}
```

31. Teacher Creates Quiz in a course

Type: Post

Path: [/courses/{id}/create-quiz](#)

Details: only privileged user can create quizzes

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb":{  
        "id-enum":"privileged-user-create-quiz-in-course",  
    },  
    "object":{  
        "id": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US": "course Data"  
            }  
        }  
    },  
    "context":{  
        "quiz":{  
            "id": "1a0e5d6e-ebba-41bf-b8d2-34af28785cb0",  
            "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",  
            "questions":  
                ["9a3bf4e3-6483-4eaf-a2bc-9aa204147073", "48df9c58-85a8-43b3-8640-  
                 7aa2388a6b75"],  
            "retries": "5",  
            "duration": "PT1H",  
            "closeOn": "2015-11-18T12:17:00+00:00",  
            "showGradeAfter": "true",  
            "showWrongAnswersAfter": "true",  
            "showCorrectAnswersAfter": "false"  
        },  
        "questions":[{  
            "id": "9a3bf4e3-6483-4eaf-a2bc-9aa204147073",  
            "question": " What methodology is iterative? ",  
            "options": [ "waterfall", "Agile", "W3DT" ],  
        }]  
    }  
}
```

```

        "answer": "Agile",
        "weight": "4"
    },{
        "id": "48df9c58-85a8-43b3-8640-7aa2388a6b75",
        "question": " What methodology is NOT iterative? ",
        "options": ["waterfall", "Agile", "W3DT"],
        "answer": "waterfall",
        "weight": "2"
    }]
}
}

```

Expected response:

```
{
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",
    "timestamp": "2015-11-18T12:17:00+00:00",
    "actor": {
        "name": "server",
        "id": "null",
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"
    },
    "verb": {
        "id-enum": "quiz-created-successfully",
    },
    "object": {
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",
        "objectType": "Activity",
        "definition": {
            "name": {
                "en-US": "Quiz Data"
            }
        }
    },
    "context": {
        "quiz": {
            "id": "1a0e5d6e-ebba-41bf-b8d2-34af28785cb0",
            "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",
            "questions": [
                "9a3bf4e3-6483-4eaf-a2bc-9aa204147073", "48df9c58-85a8-43b3-8640-7aa2388a6b75"
            ],
            "retries": "5",
            "duration": "PT1H",
            "closeOn": "2015-11-18T12:17:00+00:00",
        }
    }
}
```

```
        "showGradeAfter": "true",
        "showWrongAnswersAfter": "true",
        "showCorrectAnswersAfter": "false"
    },
    "questions": [
        {
            "id": "9a3bf4e3-6483-4eaf-a2bc-9aa204147073",
            "question": " What methodology is iterative? ",
            "options": ["waterfall", "Agile", "W3DT"],
            "answer": "Agile",
            "weight": "4"
        },
        {
            "id": "48df9c58-85a8-43b3-8640-7aa2388a6b75",
            "question": " What methodology is NOT iterative? ",
            "options": ["waterfall", "Agile", "W3DT"],
            "answer": "waterfall",
            "weight": "2"
        }
    ]
}
```

32. Student Submit Assignment

33. Student accesses Quiz

Type: Post

Path: `/courses/{id}/quiz/{id}`

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "access-quiz-in-course",  
    },  
    "object": {  
        "id": "1a0e5d6e-ebba-41bf-b8d2-34af28785cb0",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "Quiz Data"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb": {  
        "id-enum": "sent-partial-course-data-successfully",  
    },  
    "object": {  
        "id": "1a0e5d6e-ebba-41bf-b8d2-34af28785cb0",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "Quiz Data"  
            }  
        }  
    }  
}
```

```
        "en-US":"Quiz Data"
    }
}
},
"context": {
    "quiz": {
        "id": "1a0e5d6e-ebba-41bf-b8d2-34af28785cb0",
        "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",
        "questions": [
            "9a3bf4e3-6483-4eaf-a2bc-9aa204147073", "48df9c58-85a8-43b3-8640-7aa2388a6b75"
        ],
        "retries": "5",
        "duration": "PT1H",
        "closeOn": "2015-11-18T12:17:00+00:00",
        "showGradeAfter": "true",
        "showWrongAnswersAfter": "true",
        "showCorrectAnswersAfter": "false"
    },
    "questions": [
        {
            "id": "9a3bf4e3-6483-4eaf-a2bc-9aa204147073",
            "question": "What methodology is iterative? ",
            "options": ["waterfall", "Agile", "W3DT"],
            "weight": "4"
        },
        {
            "id": "48df9c58-85a8-43b3-8640-7aa2388a6b75",
            "question": "What methodology is NOT iterative? ",
            "options": ["waterfall", "Agile", "W3DT"],
            "weight": "2"
        }
    ]
}
```

34. Student Submit Quiz

Type: Post

Path: [/courses/{id}/quiz/{id}](#)

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "submit-quiz-in-course",  
    },  
    "object": {  
        "id": "1a0e5d6e-ebba-41bf-b8d2-34af28785cb0",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "Quiz Data"  
            }  
        }  
    },  
    "context": {  
        "questions": [{  
            "id": "9a3bf4e3-6483-4eaf-a2bc-9aa204147073",  
            "answer": "Agile"  
        }, {  
            "id": "48df9c58-85a8-43b3-8640-7aa2388a6b75",  
            "answer": "W3DT"  
        }]  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    }  
}
```

```
},
"verb": {
    "id-enum": "quiz-submitted-successfully",
},
"object": {
    "id": "null",
    "objectType": "Activity",
    "definition": {
        "name": {
            "en-US": "user Quiz submission Data"
        }
    }
},
"context": {
    "quiz": {
        "id": "1a0e5d6e-ebba-41bf-b8d2-34af28785cb0",
        "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",
        "questions": [
            "9a3bf4e3-6483-4eaf-a2bc-9aa204147073", "48df9c58-85a8-43b3-8640-7aa2388a6b75",
            "retries": "5",
            "duration": "PT1H",
            "closeOn": "2015-11-18T12:17:00+00:00",
            "showGradeAfter": "true",
            "showWrongAnswersAfter": "true",
            "showCorrectAnswersAfter": "false"
        ],
        "questions": [
            {
                "id": "9a3bf4e3-6483-4eaf-a2bc-9aa204147073",
                "question": " What methodology is iterative? ",
                "options": [ "waterfall", "Agile", "W3DT" ],
                "weight": "4"
            },
            {
                "id": "48df9c58-85a8-43b3-8640-7aa2388a6b75",
                "question": " What methodology is NOT iterative? ",
                "options": [ "waterfall", "Agile", "W3DT" ],
                "weight": "2"
            }
        ],
        "grade": {
            "quizId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",
            "userId": "4970e877-04f6-47d2-83aa-b43003beb9a1",
            "courseId": "ff5f9250-b19d-461a-8c6b-1102eca5dd43",
            "studentAnswers": [
                {
                    "questionId": "9a3bf4e3-6483-4eaf-a2bc-9aa204147073",
                    "studentAnswer": "Agile"
                },
                {
                    "questionId": "48df9c58-85a8-43b3-8640-7aa2388a6b75",
                    "studentAnswer": "Waterfall"
                }
            ]
        }
    }
}
```

```
        "question": "9a3bf4e3-6483-4eaf-a2bc-9aa204147073",
        "answer": "Agile"},{
        "question": "48df9c58-85a8-43b3-8640-7aa2388a6b75",
        "answer": "Waterfall"}],
    "score": {
        "FinalGrade": "4.0",
        "scaled": "0.67"
    },
    "maxGrade": "6.0",
    "success": "true",
    "completion": "true",
    "duration": "PT12M34.15S"
}
}
```

35. Teacher Create course role

Type: Post

Path: `/course/{id}/create-role`

Details: only privileged user can create a role

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "privileged-user-creates-role-in-course",  
    },  
    "object": {  
        "id": "ec1d1512-5712-4a22-99d8-161dc829fb2",  
        "objectType": "Activity",  
        "definition": {  
            "name": {  
                "en-US": "Course Data"  
            }  
        }  
    },  
    "context": {  
        "role": {  
            "courseId": "ec1d1512-5712-4a22-99d8-161dc829fb2",  
            "roleCode": "269984",  
            "role": "T.A",  
            "level": "2",  
            "privileges": ["2", "3"]  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
    }  
}
```

```
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"
    },
    "verb": {
        "id-enum": "role-created-successfully",
    },
    "object": {
        "id": "e792e71f-0660-4a63-809f-4bf4a26b4276",
        "objectType": "Activity",
        "definition": {
            "name": {
                "en-US": "Post Data"
            }
        }
    },
    "context": {
        "role": {
            "courseId": "ec1d1512-5712-4a22-99d8-161dc829fb2",
            "roleCode": "269984",
            "role": "T.A",
            "level": "2",
            "privileges": ["2", "3"]
        }
    }
}
```

36. Teacher Update course role

Type: Post

Path: [/course/{id}/update-role/{id}](#)

Details: only privileged user can update a role

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb":{  
        "id-enum":"privileged-user-update-role-in-course",  
    },  
    "object":{  
        "id": "ec1d1512-5712-4a22-99d8-161dc829fb2",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US": "Role Data"  
            }  
        }  
    },  
    "context":{  
        "role":{  
            "courseId": "ec1d1512-5712-4a22-99d8-161dc829fb2",  
            "roleCode": "269984",  
            "role": "Teacher Assistant",  
            "level": "2",  
            "privileges": [ "2", "3", "7" ]  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "server",  
        "id": "null",  
    }
```

```
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"
    },
    "verb": {
        "id-enum": "role-updated-successfully",
    },
    "object": {
        "id": "ec1d1512-5712-4a22-99d8-161dc829fb2",
        "objectType": "Activity",
        "definition": {
            "name": {
                "en-US": "Role Data"
            }
        }
    },
    "context": {
        "role": {
            "courseId": "ec1d1512-5712-4a22-99d8-161dc829fb2",
            "roleCode": "269984",
            "role": "Teacher Assistant",
            "level": "2",
            "privileges": ["2", "3", "7"]
        }
    }
}
```

37. Teacher Deletes course role

Path: `/course/{id}/delete-role/{id}`

Details: only privileged user can delete a role AND when the teacher deletes a role which a user has. The user will be defaulted to a student with basic privileges, aka a student role.

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "user",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb":{  
        "id-enum":"privileged-user-delete-role-in-course",  
    },  
    "object":{  
        "id": "ec1d1512-5712-4a22-99d8-161dc829fb2",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US": "Role Data"  
            }  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor":{  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    },  
    "verb":{  
        "id-enum": "role-deleted-successfully",  
    },  
    "object":{  
        "id": "ec1d1512-5712-4a22-99d8-161dc829fb2",  
        "objectType": "Activity",  
        "definition":{  
            "name":{  
                "en-US": "Role Data"  
            }  
        }  
    }  
}
```

```
        "name":{  
            "en-US":"Role Data"  
        }  
    }  
}
```

38. Privileged users assign roles

Path: `/course/{id}/assign-role/{user_id}`

Details: only privileged users can assign a role.

Example request body:

```
{  
  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "admin",  
        "id": "4970e877-04f6-47d2-83aa-b43003beb9a1",  
    },  
    "verb": {  
        "id-enum": "privileged-user-assigns-role-in-course",  
    },  
    "object": {  
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",  
        "objectType": "Agent",  
        "definition": {  
            "name": {  
                "en-US": "Role and User Data"  
            }  
        }  
    },  
    "context": {  
        "role": {  
            "courseId": "ec1d1512-5712-4a22-99d8-161dc829fb2",  
            "roleCode": "269984",  
            "role": "Teacher Assistant",  
            "level": "2",  
            "privileges": ["2", "3", "7"]  
        }  
    }  
}
```

Expected response:

```
{  
  
    "id": "ea0c8967-bddb-4d8e-94f0-f4a1766f5e2c",  
    "timestamp": "2015-11-18T12:17:00+00:00",  
    "actor": {  
        "name": "server",  
        "id": "null",  
        "requestBy": "4970e877-04f6-47d2-83aa-b43003beb9a1"  
    }  
}
```

```
},
"verb": {
    "id-enum": "role-assigned-successfully",
},
"object": {
    "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
    "objectType": "Activity",
    "definition": {
        "name": {
            "en-US": "User Data"
        }
    }
},
"context": {
    "role": {
        "courseId": "ec1d1512-5712-4a22-99d8-161dc829fdb2",
        "roleCode": "269984",
        "role": "Teacher Assistant",
        "level": "2",
        "privileges": ["2", "3", "7"]
    },
    "user": {
        "name": "Ahmed Hamad",
        "id": "fb6fe636-d462-4ccf-ad3e-b8a132a254f8",
        "assignedId": "20200458",
        "email": "ahmed459@gmail.com",
        "avatar": "LINK",
        "courses": ["4970e877-04f6-47d2-83aa-b43003beb9a1", "3f2c92a1-5e60-4305-83b2-ed9159d3deb1"]
    }
}
}
```

39. User submits ticket
40. Admin updates ticket status

Understanding User Needs and Preferences for the New E-Learning Platform

Background

The research plan focuses on understanding user needs and preferences for the new e-learning platform currently under development. The platform aims to provide an enhanced learning experience for students and improve accessibility to educational resources. The research will be conducted during the development phase to gather valuable insights and inform the design and feature prioritization.

Research Goal

The goal of this research is to gain a deep understanding of user needs, pain points, and preferences regarding e-learning platforms. The research findings will guide the development team in creating a user-centered platform that meets the requirements and expectations of the target users. Additionally, the research will help identify opportunities for innovation and improvement in the e-learning experience.

Research Questions

- What are the main challenges and pain points that users encounter when using existing e-learning platforms?
- What features and tools do users consider essential for an ideal e-learning platform?
- How do users prefer to access and navigate through educational materials, such as recorded lectures and course resources?
- What are the preferred methods of communication and interaction between students and instructors within an e-learning platform?
- How can the platform support different learning styles and accommodate various levels of technological proficiency?

Method & Recruiting

The research will employ a mixed-methods approach, combining qualitative user interviews and two separate online surveys for students and teaching staff.

Qualitative User Interviews:

- **Participants:** A diverse group of current or recent users of e-learning platforms.
- **Recruitment:** Participants will be recruited through targeted online platforms, educational institutions, and social media groups related to e-learning.
- **Method:** Semi-structured interviews conducted remotely via video conferencing.

- **Duration:** Approximately 45 minutes per interview.
- **Data Analysis:** Thematic analysis of interview transcripts.

Online Surveys:

1. Student Survey:

- **Participants:** Students who have experience with e-learning platforms.
- **Recruitment:** The survey will be distributed through online channels, such as email lists, social media, and educational communities.
- **Method:** Structured questionnaire with multiple-choice and open-ended questions using Google Forms.
- **Duration:** Approximately 5 -10 minutes per participant.
- **Data Analysis:** Quantitative analysis of survey responses using Google Sheets.

2. Teaching Staff Survey:

- **Participants:** Educators and teaching staff who have experience with e-learning platforms.
- **Recruitment:** The survey will be distributed through educational institutions and professional networks.
- **Method:** Structured questionnaire with multiple-choice and open-ended questions using Google Forms.
- **Duration:** Approximately 5 -10 minutes per participant.
- **Data Analysis:** Quantitative analysis of survey responses using Google Sheets.

Timeline:

- Participant recruitment: Week 1
- Interviews: Weeks 2-3
- Surveys distribution: Weeks 3-4
- Data analysis: Weeks 5-6
- Report and insights synthesis: Weeks 7-8

Script

Introduction

Researcher: Good [morning/afternoon/evening], [Participant's Name]. Thank you very much for participating in this interview. My name is Abdelrhman Mohamed, and I am a researcher working on the development of a new e-learning platform. The purpose of this interview is to gather insights and understand your experiences, needs, and preferences regarding e-learning platforms. The information you provide will be

instrumental in creating a user-centered platform that meets your requirements. Before we begin, I want to assure you that your responses will remain confidential, and the data will be anonymized for analysis purposes. Do you have any questions or concerns before we proceed?

Participant Consent Researcher: Additionally, I would like to record this session for note-taking purposes. The recording will only be accessible to the research team and will not be shared with anyone outside our team. Is it alright if I record this session?

Warm-up Questions

Researcher: Great! Now, let's start with some warm-up questions to get to know you better.

1. Can you tell me a little bit about yourself and your background related to e-learning platforms?
2. What motivated you to participate in this study and share your insights on e-learning platforms?

[Note: Add any additional warm-up questions that help build rapport and understanding of the participant's background and motivations.]

Main Interview Questions Researcher: Now, let's move on to the main questions about your experiences and preferences with e-learning platforms.

1. What are the main challenges or pain points you have encountered when using existing e-learning platforms?
2. Which features and tools do you find essential for an ideal e-learning platform? Why are they important to you?
3. How do you prefer to access and navigate through educational materials, such as recorded lectures and course resources? Are there any specific requirements or preferences you have?
4. What methods of communication and interaction do you find most effective and engaging within an e-learning platform?
5. How do you think an e-learning platform can support different learning styles and accommodate users with varying levels of technological proficiency?

[Note: Feel free to add additional questions based on the specific research goals and objectives.]

Wrap-up

Researcher: Thank you so much for sharing your experiences and insights. Your input is incredibly valuable and will greatly contribute to the development of the new e-learning platform. If you have any additional thoughts, ideas, or comments, please feel free to share them now.

Participant: [Participant's response]

Researcher: Excellent! Your feedback will be carefully analyzed and used to inform the design and development of the platform. Once again, I want to express my gratitude for your participation. If you have any further questions or would like to follow up on anything, please don't hesitate to reach out to me at 3bde1rhmanelsha3er@mail.com. Have a wonderful day!

Survey Introduction

Dear participant,

Thank you for taking part in our project survey. We are currently working on a graduation project aimed at developing an innovative online educational platform for university students. Your feedback is crucial in shaping the design and features of the platform.

Thank you for your time and valuable contribution. Your comments will make a difference in improving online education.

Students Survey Questions

1. Have you ever used any online learning platform during your university studies?
2. Please specify the platforms you have used (you can select multiple platforms based on your personal usage).
3. Among these platforms, please select the platform that you prefer to use primarily.
4. How frequently do you use the platform?
5. Do you prefer using the platform as a website on your computer or as a mobile app?
6. On a scale of 1 to 10, rate your overall experience with the platform?
7. Could you briefly explain the reason behind your rating choice?
8. What are the features/tools that you frequently use on the platform?
9. Are there any features/tools that you rarely or never use?
10. Have you encountered any issues or glitches with the platform?
11. On a scale of 1 to 5, rate the performance and speed of the platform.
12. On a scale of 1 to 5, rate the features/tools available on the platform.
13. On a scale of 1 to 5, rate the user interface of the platform.
14. What improvements or changes would you like to see in the platform?
15. What is the most important aspect for you when using an e-learning platform?
16. What are the aspects that you cannot tolerate in an e-learning platform?
17. Among the following factors, which aspect do you prefer us to prioritize more in the new platform?
18. What are the specific tools you would like to see in the new platform?
19. How do you imagine the ideal e-learning platform?

Teaching Staff Survey Questions

1. Have you used online learning platforms during your teaching tenure at the university?
2. Please specify the platforms you have used (you can select multiple platforms based on your personal usage).
3. Among these platforms, which educational platform do you consider your first / second preference?
4. Do you prefer using the platform as a website or as a mobile application?
5. Why did you choose it as your first / second preference?
6. What is the feature/tool you use the most on this platform?
7. What problems have you encountered while using this platform?
8. How did you handle these problems?
9. Rate your overall experience using the platform on a scale of 1 to 10.
10. Based on your experience, what features/tools must be available in any educational platform and cannot be compromised?
11. Based on your experience, what problems should not occur in any educational platform?

Wrap-up

Thank you so much for sharing your experiences and insights. Your input is incredibly valuable and will greatly contribute to the development of the new e-learning platform. If you have any additional thoughts, ideas, or comments, please feel free to share them now.

Academia LMS Project - User Research Report

1. Introduction

1.1 Background

The E-Learning Platform project is a critical educational tool that supports students, teaching staff, and student management professionals. Its success is dependent on its ability to meet the evolving needs and preferences of its users. To ensure its effectiveness, a user-centered approach was adopted to enhance the user experience.

1.2 Objectives

The primary objectives of this user-centered approach were:

- Identify challenges and pain points experienced by users.
- Determine essential features and tools that users require for an optimal experience.
- Gather user preferences and suggestions for platform improvement.

2. Methodology

2.1 Research Methods

To achieve the objectives, a mixed-methods approach was employed, combining qualitative user interviews and quantitative online surveys. This allowed for a comprehensive understanding of user perspectives.

2.2 Participant Recruitment

Participants were recruited through various channels, including online platforms, educational institutions, and social media groups. A diverse group of users was involved, including students, teaching staff, and student management professionals.

2.3 Data Collection

Data was collected through:

- **Semi-structured Interviews:** Conducted remotely via video conferencing, these interviews provided in-depth insights into user experiences.
- **Online Surveys:** Structured questionnaires in the form of online surveys gathered quantitative data from a larger user base.

3. User Profiles

3.1 Student Users

- Undergraduate and graduate students
- Varying levels of technological proficiency
- Seeking efficient access to course materials and effective communication tools

3.2 Teaching Staff Users

- Professors and educators with extensive teaching experience
- Adapting to online teaching methods
- Focused on content creation, interaction, and analytics

3.3 Student Management Users

- Student managers overseeing various aspects of student affairs
- Focused on data management, communication, and event coordination

4. Key Findings

4.1 Challenges and Pain Points

Student Users

- **Difficulty Locating Course Materials:** Students often struggle to find course materials quickly, causing frustration and inefficiency.
- **Anxiety About Missing Updates:** Students experience anxiety when they miss important updates and notifications, leading to missed deadlines.
- **Overwhelmed by Disorganization:** The disorganization of materials within the platform contributes to feelings of being overwhelmed.

Teaching Staff Users

- Challenges in Creating Engaging Content: Teaching staff encounter difficulties when trying to create engaging online content for students.
- Limited Interaction and Engagement: They note that there is limited interaction and engagement in virtual classrooms, impacting the quality of education.
- Difficulties in Identifying Struggling Students: Teaching staff expressed the need for tools to help them identify and support struggling students effectively.

Student Management Users

- Inefficient Access to Student Data: Student management professionals often face inefficiencies in accessing student data and communication tools.
- Difficulty Managing Administrative Tasks: The absence of certain features makes it challenging for them to manage administrative tasks effectively.
- Challenges in Identifying and Addressing Student Performance Issues: The inability to identify and address student performance issues in a timely manner poses a significant challenge.

4.2 Essential Features and Tools

Key Requirements Identified

- **Access to User-Friendly Dashboards:** Users of all profiles emphasized the importance of intuitive and user-friendly dashboards for efficient access to course materials.
- **Support for Diverse File Formats:** Users expect support for various file formats, including PDFs, videos, and interactive simulations, to cater to different learning preferences.
- **Customization Features:** Users want customization options to tailor their learning experience, allowing them to personalize their learning environment.
- **Timely Notifications:** Users highlighted the need for timely notifications for new content, announcements, and assignment due dates.
- **Collaboration Tools:** The inclusion of collaboration tools for efficient group work and peer-to-peer communication was highly valued.

4.3 User Preferences and Suggestions

Users expressed a clear preference for:

- Clear and intuitive dashboard designs.
- Rich support for multimedia and interactive content.
- Flexibility in customizing their learning environment.
- Enhanced communication and collaboration features.
- Accessibility and user-friendliness for all levels of technological proficiency.

5. Design Recommendations

5.1 Dashboard Design

- Create an intuitive and user-friendly dashboard that provides efficient access to course materials.
- Ensure that the dashboard is customizable, allowing users to personalize their learning space.
- Implement a robust notification system for timely updates on new content, announcements, and assignment due dates.

5.2 Content Formats and Customization

- Support a variety of file formats, such as PDFs, videos, and interactive simulations, to cater to different learning preferences.
- Provide customization options, allowing users to personalize their learning experience, including the arrangement of courses and resources.

5.3 Communication and Collaboration

- Implement robust communication tools, including announcements, discussions, and virtual office hours.
- Develop collaboration tools that enhance group work and peer-to-peer communication, fostering a sense of community.

5.4 Accessibility and User-Friendliness

- Prioritize accessibility and user-friendliness, ensuring that the platform accommodates users with varying levels of technological proficiency.

6. Next Steps

6.1 Implementation Plan

- Collaborate with UI designer to create prototypes based on the design recommendations.
- Refine the design through iterative user testing and feedback.

6.2 Usability Testing

- Conduct extensive usability testing with representative user groups to ensure the platform is intuitive, efficient, and user-friendly.

6.3 Continuous Improvement

- Maintain open channels for user feedback and prioritize ongoing improvements based on user suggestions and evolving needs.

6.4 Collaboration with Development Teams

- Work closely with development teams to translate design recommendations into functional features within the platform.
- Ensure seamless integration and performance optimization.

6.5 Ongoing Monitoring

- Continuously monitor user satisfaction, engagement, and performance to identify areas for improvement and optimization within the e-learning platform.

7. Conclusion

This user research provides essential insights for the development of a user-centered e-learning platform. By focusing on user needs and preferences, the platform aims to provide a superior educational experience and ensure easy access to resources.

The success of the platform depends on its ability to address user requirements, providing an efficient, customized, and pleasant learning experience. This project serves as a roadmap for further design and development, keeping the platform aligned with the evolving demands of its user community.

For further information, design details, and development steps, please refer to the additional documents in the project repository.

User Persona

Persona 01: Doaa - The Undergraduate Student

User Persona Details

Name: Doaa

Age: 21

Background: Doaa is an undergraduate student majoring in Computer Science. She's in her third year at the university. She's tech-savvy and comfortable with various online tools and platforms. Her primary goal is to excel in her studies.

User Stories for Doaa

- User Story: As Doaa, I want to be able to access course materials, including lecture notes, slides, and assignments, from a user-friendly dashboard. This way, I can quickly find what I need for my coursework.
- User Story: As Doaa, I want the platform to support various file formats, like PDFs, videos, and interactive simulations, to cater to different types of course content.
- User Story: As Doaa, I want the ability to customize my dashboard, so I can prioritize my most important courses and resources.
- User Story: As Doaa, I want to receive notifications for new content, announcements, and upcoming assignment due dates to stay on top of my coursework.
- User Story: As Doaa, I want a collaborative workspace where I can work on group projects with my peers efficiently.

Empathy Map for Doaa

What Doaa Says

- "I often find it challenging to locate the materials I need for my courses."
- "I wish there was a way to stay updated on my assignment due dates and course announcements."
- "I like having options for customizing my learning space."

What Doaa Does

- Doaa spends a lot of time searching for lecture materials.
- She frequently checks her email for course updates.
- She tries to organize her study environment to minimize distractions.

What Doaa Thinks and Feels

- Doaa feels overwhelmed when materials are disorganized.
- She worries about missing important announcements.
- She enjoys personalizing her learning experience.

Doaa's Pain Points

- Difficulty finding course materials quickly.
- Anxiety about missing important updates.
- Feeling overwhelmed by a cluttered dashboard.

What Doaa Gains

- More efficient access to study materials.
- Reduced stress through better communication.
- A sense of control and focus in her learning.

By understanding Doaa's persona, needs, and pain points, an e-learning platform can be developed or improved to cater to her specific requirements, making her learning experience more efficient and enjoyable.

Persona 02: Hassan - The University Professor

User Persona Details

Name: Hassan

Age: 42

Background: Hassan is a university professor with over 15 years of teaching experience in the field of Computer Engineering. He's well-versed in traditional teaching methods and is adapting to online education. His primary goal is to engage and educate his students effectively.

User Stories for Hassan

- User Story: As Hassan, I want an intuitive content creation tool that allows me to design engaging and interactive online lectures and course materials.

- User Story: As Hassan, I need a platform that supports live video streaming and virtual classroom features for conducting real-time interactive sessions with my students.
- User Story: As Hassan, I'd like a robust discussion forum to encourage student participation and facilitate peer-to-peer learning.
- User Story: As Hassan, I want to be able to track student progress and engagement through analytics to adapt my teaching methods for better outcomes.
- User Story: As Hassan, I need easy integration with the university's grading system and a feature for securely sharing grades and feedback with students.

Empathy Map for Hassan

What Hassan Says

- "Online teaching tools should be as user-friendly as traditional classroom materials."
- "I need a platform that makes it easy for students to ask questions and participate in discussions."
- "Analytics on student engagement can help me identify struggling students and provide timely support."

What Hassan Does

- He spends time creating course materials and lectures.
- He encourages student participation through discussions and assignments.
- He uses analytics to assess student progress.

What Hassan Thinks and Feels

- Hassan values effective teaching methods.
- He feels the need to adapt his teaching style to online platforms.
- He wants to foster a sense of community and engagement in his virtual classroom.

Hassan's Pain Points

- Difficulty in creating engaging online content.
- Limited interaction and engagement in virtual classrooms.
- Challenges in identifying struggling students.

What Hassan Gains

- Enhanced teaching materials and methods.

- Increased student engagement and participation.
- Better support for struggling students through analytics.

Understanding Hassan's persona, pain points, and needs can help in designing an e-learning platform that empowers professors like him to provide high-quality education in the online environment. This persona can guide the development of features and tools tailored to the unique requirements of teaching staff.

Persona 03: Kareem - Student Manager / Management Staff

User Persona Details

Name: Kareem

Age: 35

Background: Kareem works as a student manager at a university, overseeing various aspects of student affairs. He's responsible for ensuring a smooth and efficient learning environment for both students and teaching staff.

User Stories for Kareem

- User Story: As Kareem, I need a comprehensive dashboard that provides an overview of student enrollment, attendance, and performance data to make informed decisions.
- User Story: As Kareem, I want to be able to communicate with students and professors effectively through the platform to address any administrative issues or concerns.
- User Story: As Kareem, I require a feature that allows me to schedule and manage online meetings, workshops, and events for students and teaching staff.
- User Story: As Kareem, I need access to data analytics and reports that help me identify trends, improve student retention, and optimize course offerings.
- User Story: As Kareem, I want a secure and efficient system for managing student records, including enrollment, grades, and course schedules.

Empathy Map for Kareem

What Kareem Says

- "I need quick access to up-to-date information on student enrollment and performance."
- "Communication with students and professors should be seamless to address issues promptly."
- "Data analytics can help us understand and improve student outcomes."

What Kareem Does

- He regularly reviews data and reports on student enrollment and performance.
- He communicates with students and professors to resolve administrative matters.
- He uses data analytics to inform decision-making.

What Kareem Thinks and Feels

- Kareem aims for efficient management of student affairs.
- He wants to provide support and resources for student success.
- He feels that data-driven insights are critical for making informed decisions.

Kareem's Pain Points

- Inefficient access to student data and communication tools.
- Difficulty in managing administrative tasks without proper features.
- The challenge of identifying and addressing student performance issues.

What Kareem Gains

- Streamlined access to critical student data and communication tools.
- Improved administrative efficiency and the ability to support student success.
- Informed decision-making and better student outcomes through data analytics.

Understanding Kareem's persona and the challenges he faces in managing student affairs can guide the development of an e-learning platform with administrative features that empower professionals like him to enhance the overall educational experience and student support services.

1. Admin Creates User Account

Test case ID	FTC01
Title	Admin Creates User Account
Test Scenario	Admin wants to create a new user account for teacher or student
Pre-Conditions	None
Test steps	<p>Web: From admin dashboard choose add user Fill form with user details Submit</p>
Test Data	Name = Ahmed Ali Email = a.Ali@fci-cu.edu.eg AssignedID = Null (because this user will be a teacher) Mobile = 01039275657 Title = Information Systems Teacher Assistant Department = IS
Expected Results	A pop up stating that user is creating successfully
Exceptions	Error pop up showing which field input was wrong

2. User Logins

Test case ID	FTC02
Title	User Logins
Test Scenario	Check Log In with invalid Email and Password
Pre-Conditions	None
Test steps	<p>Web: From Landing Page Navigate to log in button Press it and fill form Submit</p> <p>Mobile: After Onboarding Screens The login forms appears Fill form Submit</p>
Test Data	Email = test2eeee3e@email.com Password = 1234567
Expected Results	Login successful and the user is guided to their homepage
Exceptions	Error pop up showing which field input was wrong

3. User Resets Password

Test case ID	FTC03
Title	User Resets Password
Test Scenario	A user wishes to reset password/forgot password
Pre-Conditions	None
Test steps	<p>Web & Mobile:</p> <p>From Login page press forgot password / From setting and password page choose reset password</p> <p>A verification email will be send with an OTP</p> <p>Submit the OTP and reset password</p>
Test Data	None
Expected Results	Password updated and user is redirected to login page
Exceptions	Error pop up showing which field input was wrong

4. Teacher Adds Assignment

Test case ID	FTC04
Title	Teacher Adds Assignment
Test Scenario	A teacher wants to add an assignment to a course
Pre-Conditions	<p>User is logged in</p> <p>User is an assigned teacher in a specific course</p>
Test steps	<p>Web:</p> <p>From the course homepage navigate to the assignments tab</p> <p>Click the + sign to create a new assignment</p> <p>Submit all required details</p>
Test Data	<p>Title = Assignment 3 linear regression</p> <p>Description = please study beforehand this assignment is due by next week and is worth 10 grades</p> <p>Deadline = 13/7/2024</p> <p>PostOn = 6/7/2024</p> <p>Material = {file UUID}</p>
Expected Results	The Files are uploaded to the server and a post linking to the assignment is created.
Exceptions	Error pop up showing which field input was wrong

5. Student Submits Assignment

Test case ID	FTC05
Title	Student Submits Assignment
Test Scenario	A student wants to submit a specific assignment solutions
Pre-Conditions	User is logged in User is an enrolled student in a specific course
Test steps	Web & Mobile: From the course homepage navigate to the assignments tab then the specific assignment or navigate to it through its associated post Student attaches the solution files Presses submit
Test Data	Material = {files UUID}
Expected Results	The Files are uploaded to the server and the student submission is recorded
Exceptions	Error pop up showing which field input was wrong

6. Student Checks Course Grades

Test case ID	FTC06
Title	Student Checks Course Grades
Test Scenario	A student wants to check their course grades
Pre-Conditions	User is logged in User is an enrolled student in a specific course
Test steps	Web & Mobile: Navigate to a course homepage Navigate to either assignment or quiz to check the submissions
Test Data	None
Expected Results	The student can check on their grades so far.
Exceptions	None

7. Student Self-Enrolls with Codes

Test case ID	FTC07
Title	Student Self-Enrolls with Codes
Test Scenario	A student wants to enroll in a course

Pre-Conditions	User is logged in
Test steps	<p>Web & Mobile:</p> <p>Navigate to a app home page Access the search courses button Enter search term Choose desired course Enter enrollment code</p>
Test Data	CourseName = Geographical Information Systems CourseEnrollmentCode = AG32HYR
Expected Results	The student is enrolled in course and case check posts
Exceptions	A pop because of an error in enrollment code A pop because course reached max capacity

8. Admin Creates Courses

Test case ID	FTC08
Title	Admin Creates Courses
Test Scenario	An Admin wants to create a new Course
Pre-Conditions	Admin is logged in
Test steps	<p>Web:</p> <p>From the admin dashboard click “Add new Course” button Provide all the details Submit</p>
Test Data	CourseName = Theories of Mind Code = AI579 EnrollCode =AG35AGT Teacher = {List of user UUID}
Expected Results	A new course is created in the system with the assignment users as teachers, and is in an inactive state.
Exceptions	Error pop up showing which field input was wrong

9. Teacher Adds/Reuses Material

Test case ID	FTC09
Title	Teacher Adds/Reuses Material
Test Scenario	A teacher wants to reuse an assignment or a quiz from previous courses
Pre-Conditions	User is logged in User is assigned as Teacher in multiple courses

Test steps	Web: Navigate to a previous Course Navigate to a specific Post/Assignment/Quiz Click “Re-post in another Course” Choose a specific Course Modify any necessary data Submit
Test Data	Mostly are pre-filled But some data like dates can be changed
Expected Results	A new Post is created in the specified course, and if applicable a new Quiz/Assignment are created too
Exceptions	Error pop up showing which field input was wrong

10.Teacher Adds Quiz

Test case ID	FTC10
Title	Teacher Adds Quiz
Test Scenario	A teacher wants to add an Quiz to a course
Pre-Conditions	User is logged in User is an assigned teacher in a specific course
Test steps	Web: From the course homepage navigate to the quizzes tab Click the + sign to create a new Quiz Submit all required details
Test Data	Title = Quiz 3 linear regression Description = please study beforehand this quiz is due by next week and is worth 10 grade. Quiz will be opened only or 1 hour. Deadline = 13/7/2024 PostOn = 6/7/2024 QuestionList = {User entered MCQ questions} Total Grade = 10 AutoGrade = Trues Duration = 1 hour
Expected Results	The Questions are uploaded to the server and a post linking to the quiz is created.
Exceptions	Error pop up showing which field input was wrong

11.Student Submits Quiz

Test case ID	FTC11
Title	Student Submits Quiz
Test Scenario	A student wants to submit a specific Quiz Answers
Pre-Conditions	User is logged in User is an enrolled student in a specific course
Test steps	Web & Mobile: From the course homepage navigate to the Quizzes tab then the specific assignment or navigate to it through its associated post Student provides an answer to each question Student Submits
Test Data	Answers = {User Entered}
Expected Results	The students answers are recorded and his grade is calculated if applicable.
Exceptions	Error pop up showing which field input was wrong

12.Teacher Grades Quiz

Test case ID	FTC12
Title	Teacher Grades Quiz
Test Scenario	A teacher wants to grades a quiz
Pre-Conditions	User is logged in User is an assigned teacher in a specific course
Test steps	Web: From the course homepage navigate to the quizzes tab. Select a specific quiz A list of students will be shown, choose one who has submitted his answers Grade Each question manually by stating if the answers is correct or false.
Test Data	GradedAnswers = {User Entered}
Expected Results	The graded questions are uploaded to the students submission and his final score is calculated
Exceptions	Error pop up showing which field input was wrong

13. Student Checks Pending deadlines

Test case ID	FTC13
Title	Student Checks Pending deadlines
Test Scenario	A student wants to check upcoming deadlines
Pre-Conditions	User is logged in User is enrolled in a specific course
Test steps	Web & Mobile: Navigate to a course homepage Navigate to either assignment or quiz to check the submissions
Test Data	None
Expected Results	Student can see which Quizzes and assignments aren't submitted yet and their deadlines
Exceptions	None

14. Teacher Creates Post

Test case ID	FTC14
Title	Teacher Creates Post
Test Scenario	A teacher wants to Create a post in a course
Pre-Conditions	User is logged in User is an assigned teacher in a specific course
Test steps	Web: Navigate to a course homepage Click on the create post section and submit details Submit post
Test Data	Title = Change in next week's lecture schedule Content = next week lecture will be delayed by an hour, we will start at 2 pm AllowComments = No Alert = True
Expected Results	The post is created and is viewable by students
Exceptions	Error pop up showing which field input was wrong

15.Teacher Integrates YouTube Video

Test case ID	FTC15
Title	Teacher Integrates YouTube Video
Test Scenario	A teacher wants to Create a post in a course with a YouTube embed
Pre-Conditions	User is logged in User is an assigned teacher in a specific course
Test steps	Web: Navigate to a course homepage Click on the create post section and submit details Submit post
Test Data	Title = Recommended explanation video Content = I know last week lecture was difficult, if any students didn't understand please view this helpful material https://www.youtube.com/watch?v=dQw4w9WgXcQ AllowComments = Yes Alert = No
Expected Results	The system infers the youtube link from the post context and replaces the youtube text by a youtube embed.
Exceptions	Error pop up showing which field input was wrong

16.User Accesses Settings

Test case ID	FTC16
Title	User Accesses Settings
Test Scenario	A user wants to change setting such as theme
Pre-Conditions	User is logged in
Test steps	Web & Mobile: From homepage press your profile picture Navigate to setting option Updated any setting as desired Submit
Test Data	None
Expected Results	The system updates this user account setting locally.
Exceptions	Error pop up showing which field input was wrong

17.Student Feedback Mechanisms

Test case ID	FTC17
Title	Student Feedback Mechanisms
Test Scenario	A student wants to submit feedback on a specific course and teacher
Pre-Conditions	User is logged in User is enrolled in a specific course
Test steps	Web & Mobile: Navigate to course homepage Press the Dotted option next to the course header Click provide feedback Fill the form Sumit
Test Data	Answers = {A list of answers for the provided questions}
Expected Results	User feedback is uploaded and stored on the server.
Exceptions	Error pop up showing which field input was wrong

18.Assessment Tools/Teacher Dashboard

Test case ID	FTC18
Title	Assessment Tools/Teacher Dashboard
Test Scenario	A teacher wants to view a course analytics
Pre-Conditions	User is logged in User is an assigned teacher in a specific course
Test steps	Web: Navigate to a course homepage Navigate to the analytics page
Test Data	None
Expected Results	The user can see general analytics like number of students, Assignments count, Average grade, dates of quiz submissions, etc.
Exceptions	None

19.Student Downloads Materials

Test case ID	FTC19
Title	Student Downloads Materials
Test Scenario	A student wants to download attached materials
Pre-Conditions	User is logged in User is enrolled in a specific course
Test steps	Web & Mobile: Navigate to a course homepage Navigate to a specific post/quiz/assignment Press on the attached material file to open in another app that can read the file format Download it.
Test Data	None
Expected Results	The user can open attached material through third-party app and download it.
Exceptions	Error pop up when opening specific file due to server error

20.Admin Manages User

Test case ID	FTC20
Title	Admin Manages User
Test Scenario	Admin wants to update a specific user
Pre-Conditions	None
Test steps	Web: From admin dashboard search for user with id Update their settings, example make them teacher in a specific course Submit changes
Test Data	searchTerm = a.Ali@fci-cu.edu.eg Course = {Course UUID} AssignTeacher = Yes
Expected Results	A pop up stating that user setting been changed successfully
Exceptions	Error pop up showing which field input was wrong

21.Admin Manages Courses

Test case ID	FTC21
Title	Admin Manages Courses
Test Scenario	Admin wants to update a specific course
Pre-Conditions	None
Test steps	<p>Web:</p> <p>From admin dashboard search for course with id Update their settings, example update course capacity and status Submit changes</p>
Test Data	CourseCode = AI789 maxCapacity = 250 status = archived
Expected Results	A pop up stating that course setting been changed successfully
Exceptions	Error pop up showing which field input was wrong

22.Teacher Assigns Roles and Permissions

Test case ID	FTC22
Title	Teacher Assigns Roles and Permissions
Test Scenario	A teacher wants to change some user permissions
Pre-Conditions	User is logged in User is an assigned teacher in a specific course
Test steps	<p>Web:</p> <p>Navigate to a course homepage Navigate to the course setting page Navigate to roles Update the “TA” role setting to allow them to grade assignments. Submit</p>
Test Data	None
Expected Results	The Teacher changes what other users can do in said course, in this case now users with TA role can grade any assignment submission
Exceptions	Error pop up stating what input is wrong

23.Admin Reviews Reports and Analytics

Test case ID	FTC23
Title	Admin Reviews Reports and Analytics
Test Scenario	Admin wants to view general reports for this semester
Pre-Conditions	None
Test steps	<p>Web: From admin dashboard you can view a list of courses under specific parameters Choose on course to check its analytics</p>
Test Data	courseTerm = summer 2023 department = IS Status = Archived
Expected Results	The admin can see the analytics of a previous or ongoing course. Seeing data like number of courses, student engagement, average grades, student feedback, etc..
Exceptions	None

24.Admin Supports User

Test case ID	FTC24
Title	Admin Supports User
Test Scenario	Admin wants to respond to user tickets
Pre-Conditions	None
Test steps	<p>Web: From admin dashboard click tickets tab Select one ticket to view</p>
Test Data	None
Expected Results	The admin can see the Tickets and complaints user uploaded with their information for possible response.
Exceptions	None

25.Admin Manages Platform Maintenance and Updates

Test case ID	FTC25
Title	Admin Manages Platform Maintenance and Updates
Test Scenario	Admin wants to update whole platform settings
Pre-Conditions	None
Test steps	Web: From admin dashboard choose option to pause all write, update and delete operations.
Test Data	None
Expected Results	The admin can pause all write/read/update/delete operations on the system till the updates or maintenance are desired
Exceptions	None