

COSC 310 Milestone 2

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Description:

Learning Layers is an innovative e-learning platform designed to transform the traditional classroom experience into a dynamic, interactive, and AI-enhanced learning environment. By leveraging AI technology, it engages students in a more personalised learning process, setting it apart from platforms like iClicker with its advanced functionalities

User Requirements:

Student:

- ❖ Authentication:
 - Allows students to login/signup with a valid username and password.
- ❖ Profile Customization:
 - Pick from selected avatars, create and edit profile information (username, avatars, password).
- ❖ Course Interaction:
 - Search for available courses.
 - Enrol in courses of interest.
 - Drop from an enrolled course.
- ❖ Learning Engagement:
 - Personalised dashboard for current courses, grades, participation, and notifications.
 - Interactive learning through multiple-choice questions and AI-generated practice questions.

Teacher:

- ❖ Authentication:
 - Allows teachers to login/signup with a valid username and password.
- ❖ Profile Customization:
 - Pick from selected avatars, create and edit profile information.
- ❖ Course and Session Management:
 - Create new assignments and start sessions.
 - Visualise student submissions with statistical charts.
- ❖ Student Monitoring and Assessment:
 - Monitor student progress (grades, participation, assignment completion).
 - Create interactive polls and quizzes, automatic grading.
 - Grade assignments.

Admin:

- ❖ Authentication:
 - Allows admin to login/signup with a valid username and password.
- ❖ Course Management:
 - Create and manage courses

- ❖ User Management
 - Manage students in a course (add/remove).

Functional Requirements:

- ❖ Users will be able to create a profile by clicking on the "create an account" option on the home page.
- ❖ User should be able to click forgot password and update profile by changing password
- ❖ Users will be able to search for courses in any department using a search bar tool by course name and code
- ❖ Students will be able to check in and out of the class they are registered in.
- ❖ When logged in and having selected a course, user can see their overall attendance and grade score for the selected course.
 - The system should provide a clear display of class progress over time within each course.
- ❖ A button labelled "expand my knowledge" should be available after a class session.
- ❖ Instructors will have access to real-time analytics on students' responses and participation during and after polling.
- ❖ Admin should be able to create and manage different courses.
- ❖ Instructors should be able to customise questions for quizzes to align with their specific learning objectives.

Non-Functional Requirements:

- ❖ The system should be designed and documented in a way that is understandable to the customers, promoting effective communication between users and developers.
- ❖ The development and operation of the system should comply with relevant industry standards to ensure compatibility
- ❖ The system should meet timing constraints, in terms of performance, to ensure a responsive and efficient experience for users.
- ❖ The system should protect user information and maintain privacy.

Product Requirements:

- ❖ The system's user interface and interaction will be designed to be easily understandable to users.
- ❖ The system must be developed using "javascript"
- ❖ The system will have no longer than 20 second wait time especially during real-time polling, to ensure a seamless user experience.
- ❖ The system should be scalable to accommodate more users and more courses in the future.
- ❖ The system will provide opportunity for explanations to students for the correct answers using artificial intelligence in an application programming interface

User Stories:

- ❖ As a student I want to be able to create a profile so that I can participate in online lecture polls.

Acceptance criteria : User starts on the home page and is prompted to click on create an account and an information form page appears requesting the user's information.

- ❖ As a student, I want to track my progress and performance over time within each course on the platform so that I know how well I'm doing in a class.

Acceptance criteria : If a user is logged in and has selected a course, their overall attendance in the class will be displayed as well as their score in the given class.

- ❖ As a student I want to be able to enrol in a course so that I can participate in online lecture polls.

Acceptance Criteria : Users can look for course name and code using a search bar tool.

- ❖ As a student I want to be able to check into class so that I can increase my attendance score.

Acceptance criteria : Student clicks check into class button that results in a message letting them know they have checked in.

- ❖ As a student, I want to have the option to receive additional learning so that when I'm done with a session in class, I can learn from the mistakes I made in class to gain a deeper understanding of class content.

Acceptance criteria : Once a user is done with a class session, a button saying “expand my knowledge →” can be clicked to present the user with more questions similar to the ones shown in class.

- ❖ As an instructor, I want to view real-time analytics on students' responses and participation to gauge their understanding.

Acceptance Criteria: After the polling is closed the professor should see statistics of answers displayed.

- ❖ As an instructor, I want to create and manage different courses within the platform, each with its set of learning materials and assessments.

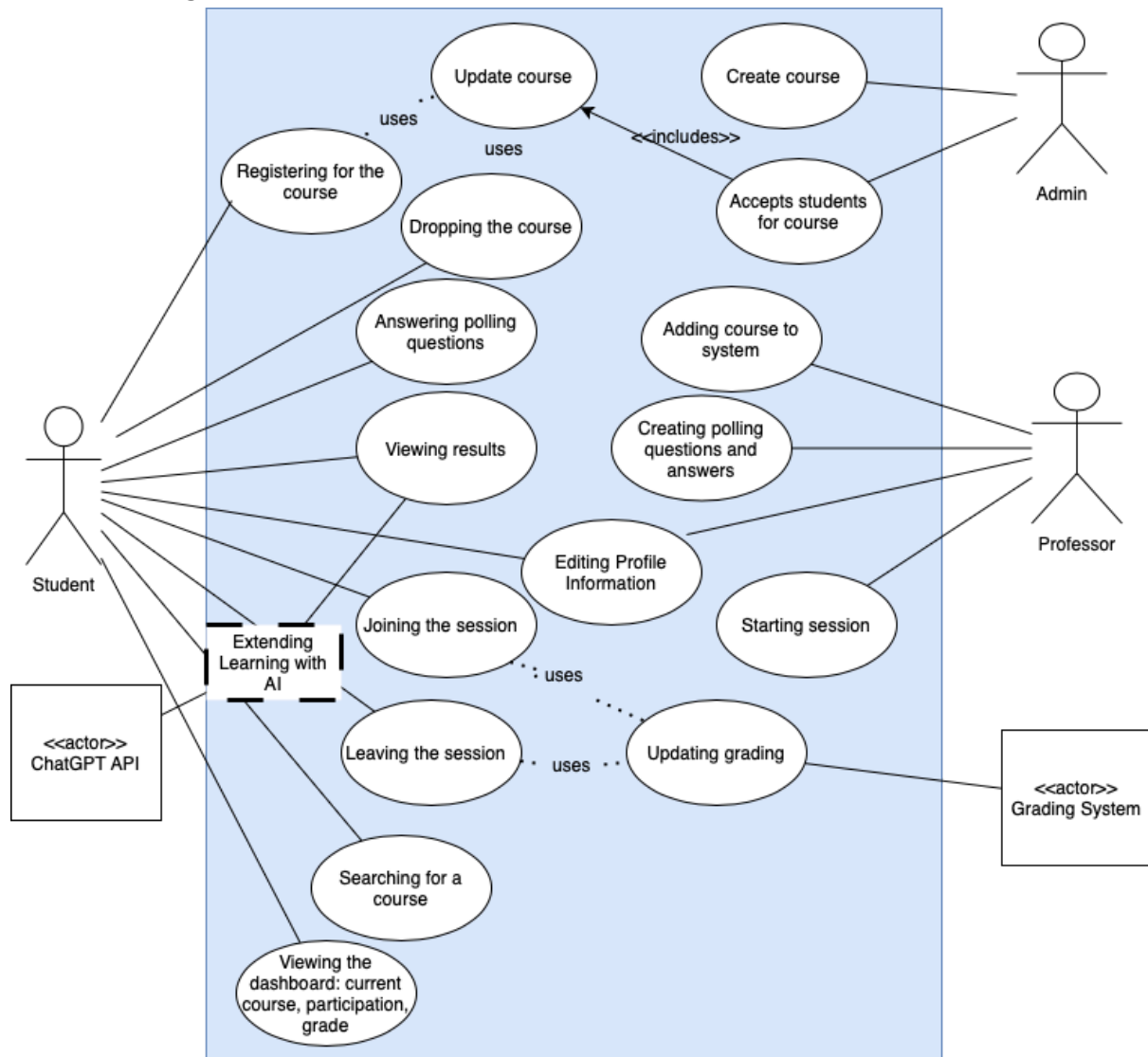
Acceptance Criteria: The instructor clicks on “create course” which directs them to a form where they fill out the course name and course information. Clicking “manage course” takes them to the course page where they can set quizzes and view pre-existing ones.

- ❖ As an instructor, I want to customise the assessment criteria for quizzes to align with the specific learning objectives of my course.

Acceptance Criteria: The instructor clicks on the customise quizzes button which prompts them to a page where there are options on how to present the quizzes from multiple choice to short answers to fill in the blanks and an option for others which allows for further personalised customization

<<--Use case Diagram on the next page -->>

Use Case Diagram



- **Actors:**
 - ChatGPT API: Represents an external AI service that can be used to extend learning.
 - Grading System: An external or internal system responsible for grading.
- **Main Use Cases:**
 - Registering for the course: Users can sign up for courses they are interested in.
 - Dropping the course: Users have the ability to unregister or drop a course.
 - Answering polling questions: During or after the course, users can engage by answering polls.

- Viewing results: Users can view the results of polls or other assessments.
- Joining the session: Users can join a learning session.
- Leaving the session: Users can leave a learning session.
- Searching for a course: Users can search the system for courses they wish to take.
- Viewing the dashboard: This includes current course information, participation, and grade details.
- Course Management Use Cases:
 - Create course: Instructors or administrators can create new courses.
 - Accepts students for course: The system or course creator can accept students into the course.
 - Adding course to system: The system allows for the addition of new courses.
 - Creating polling questions and answers: Instructors or administrators can create polls for their courses.
 - Editing Profile Information: Users can edit their own profile information.
 - Starting session: Instructors can initiate a learning session.
 - Updating grading: The grading system can update students' grades.
- Relationships and Dependencies:
 - Create course includes Accepts students for course.
 - Update course uses Dropping the course and Registering for the course.
 - Joining the session and Leaving the session are likely part of the Starting session process.
 - Extending Learning with AI (ChatGPT API) could be a feature used in various scenarios like aiding in answering polling questions, searching for courses, or providing additional learning content.