IT314: Software Engineering
Group-33

GROUP MEMBERS:

ID	Name
202201470	Priyank Asodariya
202201471	Dhwani Joshi
202201472	Kaushik Prajapati
202201475	Krutarth Kadia
202201476	Parv Patel
202201483	Neel Tandel
202201501	Jish Chanchapra
202201524	Yash Rathod
202201525	Heer Shah
202201527	Zenil Rupareliya

System Design And Object Design

➢ System Design

System Overview

The Online Learning Portal is a website that helps students take classes online. It has a few main parts:

- *Course Management* - This is where teachers can add their class materials, like videos, quizzes and assignments. They can create new modules and set up the content.
- *User Authorization* - This handles logging in and permissions. Students and teachers have accounts, and the system makes sure each person can only access what they're supposed to.
- *Dashboard* - This is like a homepage where students and instructors can see their progress in their classes. They can see what they've done recently and how they're doing overall.

Data Flow

- Teachers use the Course Management Service to create and upload courses, which are saved in the Course Database.
- Students and teachers log in using the User Authorization Service, which ensures they are allowed to access their specific features.
- Students can view their progress and updates on the Dashboard Service, which gets data from the User Database.

Non-Functional Requirements

- Scalability
- Security
- User-friendly
- Performance
- Portability

Technology Stack

1. Figma (UI/UX Designing)

- **Purpose**: Used for creating wireframes, prototypes, and designing the user interface.
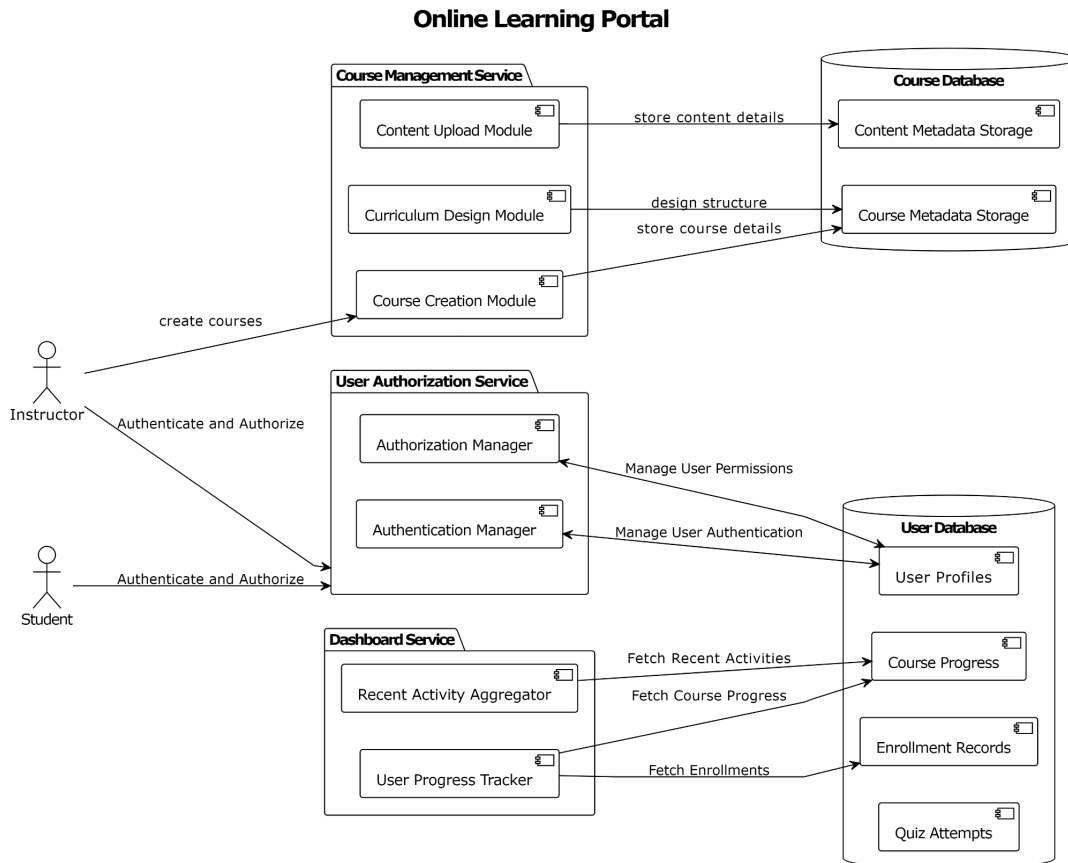
2. React (Frontend)

- **Purpose**: Builds the user interface (UI) for students and instructors.

3. MongoDB (Database)

- **Purpose**: Stores data such as user profiles, course details, progress, and quiz attempts.

4. Node.js (Backend)

- **Purpose**: Manages the backend logic, APIs, and integration with the database.

Online Learning Portal

➢ Object Design

➔ Object Design for Authentication and Authorization

Overview

This design shows how users log in or register for the system. It includes the main fields (like username and password) and buttons for actions (like logging in or registering).

Key Objects

1. *Login Form*
   - <u>Attributes:</u>
     - `Username/Email Text-box`: Where users enter their email or username.
     - `Password Text-box`: Where users type their password.
   - <u>Methods:</u>
     - `loginButtonClick()` - Sends the data for verification to check if it's correct.
2. *Registration Form*
   - <u>Attributes:</u>
     - `Username Text-box`: Input for a new username.
     - `Email Text-box`: Input for a valid email address.
     - `Password Text-box`: Input for creating a password.
     - `Confirm Password Text-box`: Ensures the password matches.
   - <u>Methods:</u>
     - `registerButtonClick()` - Saves the user data in the system if valid.
     - `chooseRole()` - Lets users select if they are a student or instructor.

How It Works

1. *Login Process:*
   - Users enter their username/email and password in the login form.
   - They click the "Login" button, and the system checks if the credentials are correct.
   - If correct, they are allowed to access the platform.
2. *Registration Process:*
   - New users fill in their username, email, password, and confirm the password.
   - They choose their role (Student or Instructor) using the role buttons.
   - After clicking "Register," their account is created if all inputs are valid.

This system ensures users can securely log in or register, for existing and new users, respectively.

Authentification and Authorization
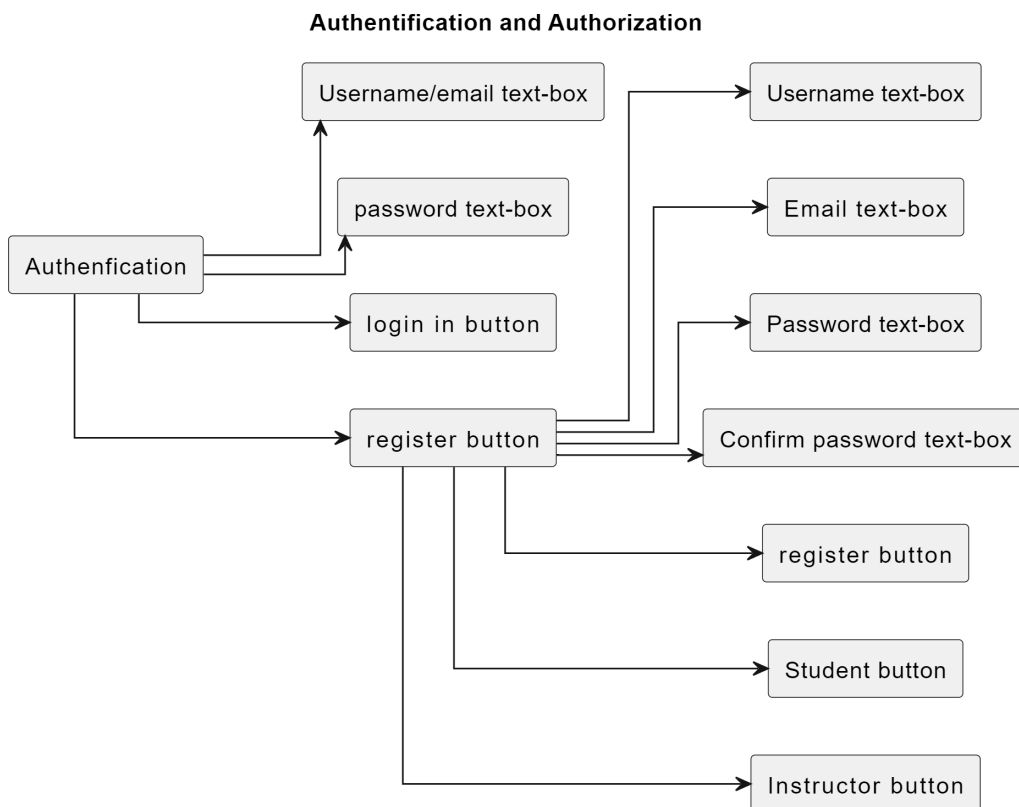
➔ Object Design for Course Management Service

Overview

This design details the workflow for creating and managing online courses within the Course Management Service. It includes forms, buttons, and actions to input course details, upload content, and manage course modules.

Key Objects

1. Course Details Form

- Attributes:
    - Course Title Text-box: Input for the course's title.
    - Category Text-box: Input for categorizing the course (e.g., programming, design).
    - Level Text-box: Input to specify the course difficulty (e.g., Beginner, Advanced).
    - Primary Language Text-box: Input to specify the language in which the course is delivered.
    - Subtitle Text-box: Input for any subtitles.
    - Description Text-box: Input for a detailed description of the course.
    - Pricing Text-box: Input for setting the course price.
    - Welcome Text-box: Input for a welcome message for course participants.
    - Add Course Image Button: Button to upload a course image, which triggers a dialog box.
- Methods:
    - saveChanges(): Saves the course details entered into the system.
    - cancelChanges(): Cancels any modifications and resets the form.

2. Module Management Section

- Attributes:
    - Add Module Button: Button to create a new course module.
    - Upload Module Content Button: Button to upload non-video module materials (e.g., PDFs, documents), triggering a dialog box.

■ Upload Module Video Button: Button to upload video content for a module, triggering a dialog box.
● *Methods:*
■ addModule(): Adds a new module to the course.
■ uploadContent(): Opens a dialog box for uploading non-video materials to a module.
■ uploadVideo(): Opens a dialog box for uploading video files to a module.
■ saveCourse(): Saves all modules and their content into the course structure.
■ cancelModuleChanges(): Cancels module creation or edits.

How It Works

Course Details Workflow:

1. Start Course Creation:
   ● Users click the Course Creation Button, which navigates them to the course details form.
2. Input Details:
   ● Users fill in fields like Course Title, Category, and Description.
   ● They can upload a course image by clicking Add Course Image Button, which triggers a dialog box for file upload.
3. Save or Cancel:
   ● Users can click Save Changes Button to save the data or Cancel Button to reset the form.

Module Management Workflow:

1. Navigate to Modules:
   ● After saving course details, users click the Modules Button to navigate to the module management section.
2. Add Module:
   ● Users click the Add Module Button to create a new module.
3. Upload Content:
   ● For each module, users can:
     ■ Click Upload Module Content Button to upload files (triggering a dialog box).

- Click Upload Module Video Button to upload video files (triggering a dialog box).
4. Save or Cancel:
- Users finalize their work by clicking Save Course Button to save all modules or Cancel Button to discard changes

This design ensures a organised, user-friendly workflow for creating courses and managing their modules and content.

Course Management Service

Course title text-box	
Category text-box	
Level text-box	
Primary Language text-box	
Subtitle text-box	
Description text-box	
Course details button	Pricing text-box
	Welcome text-box
Add course image button	[Click] event → dialog box
save changes button	
cancel button	

Course Creation button — [Click] event → Course details button

Course Creation button — [Click] event → modules button

modules button — add module button — [Click] event → Upload module content button — [Click] event → dialog box

add module button — [Click] event → Upload module video button — [Click] event → dialog box

modules button — save course button

modules button — cancel