OOAD with Java
Project Title: E-Learning System
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Team Members:

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1. **Class name:** User

List of Attributes:

Sl .no	Attribute Name	Datatype	Access Type	Default Value
1	username	String	public	-
2	email_id	String	private	-
3	password	String	private	-
4	first_name	String	private	-
5	last_name	String	private	-
6	date_of_birth	String	private	-

Methods:

- boolean Login(String username, String password)
    - Description: This method helps the user to login into the application

- boolean CreateAccount(String first_name, String last_name, String username, String email_id, String password, String date_of_birth)
    - Description: Used to create a new account if the user does not have an account.

- List<Course> viewTopCourses()
    - Description: used to view popular courses that numerous users have enrolled.

- List<Course> searchCourses(String search_query)
    - Description: Used to search courses

- boolean enrollforCourse(int course_id, String username)
    - Description: Helps the user to enroll in the desired course

- Course getCourseDetails(int course_id)
    - Description: Used to get the details about the desired course

- int getQuizResults(int courseId, String username)
    - Description: Method which returns the result of the quiz that the user took for the enrolled course.

- Double viewCourseProgess(int course_id, String username)
    - Description: Helps the user to know how much he has completed the course

- void submitQuizAnswers(int quiz_id, String username, List<Answer> answers)
    - Description: The user can submit the answers for the quiz with the help of this function

2. **Class name:** Instructor

List of Attributes:

SI .no	Attribute Name	Datatype	Access Type	Default Value
1	first_name	String	public	-
2	last_name	String	public	-
3	username	String	public	-
3	password	String	private	-
4	Email id	String	public	-
4	contact_no	String	private	-

Methods

- boolean Login(String username, String password)

- ○ Description: This method allows the instructor to log in to the system using their username and password.

- boolean CreateAccount(String first_name, String last_name, String username, String email_id, String password, String date_of_birth)
  - ○ Description: Used to create a new account if the instructor does not have an account.
  - ○

- void createCourse(int course_id, int course_id, String course_name, String course_description)
  - ○ Description: This method allows the instructor to create a new course. It does not return any value.

- void editCourse(int course_id, Course course)
  - ○ Description: This method allows the instructor to edit a course. It does not return any value.

- void addTopic(int course_id, Topic topic)
  - ○ Description: This method allows the instructor to add a topic. It does not return any value.

- void editTopic(int course_id, Topic topic)
  - ○ Description: This method allows the instructor to edit a topic. It does not return any value.

- void deleteTopic(int course_id, Topic topic)
  - ○ Description: This method allows the instructor to delete a topic. It does not return any value.

- void createQuiz(int course_id, int quiz_id, String quiz_name)
  - ○ Description:This method allows the instructor to create a quiz for his course. It does not return any value

- void deleteCourse(string courseid)
  - ○ Description: This method allows the instructor to delete a course. It takes the course ID as a parameter and does not return any value.
- void logout()
  - ○ Description: This method allows the instructor to log out of the system. It does not take any parameters and does not return any value.

- void updateInstructorProfile(Instructor InstructorProfile)
  - Description: This method allows the instructor to update their profile information.

3. **Class name:** Course

List of Attributes:

SI .no	Attribute Name	Datatype	Access Type	Default Value
1	course_name	String	public	-
2	course_id	String	public	-
3	course_desc	String	public	-
4	instructor_name	String	public	-

Methods:
- void addTopic(Topic topic):
  - Description: This method adds a new topic to the course.

- void removeTopic(Topic topic_id):
  - Description: This method removes a topic from the course.

- Topic viewLessons():
  - Description: This method returns all the topics under a course.

- void enrollUser(String username)
  - Description: This method allows a user to enroll in the course.

- void unenrollUser(String username)
  - Description: This method allows a user to unenroll from the course.

- User viewEnrolledUsers()
  - Description: This method returns an array of users who are currently enrolled in the course.

- Instructor viewInstructor()
  - Description: This method returns the instructor of the course.

4. **Class name**: Quiz

List of Attributes:

SI .no	Attribute Name	Datatype	Access Type	Default Value
1	min_percent	double	private	0.8
2	no_of_quest	int	public	10
3	course_id	String	public	-
4	user_id	String	public	-

Methods

- Void evaluate(double max_marks,int no_of_request)
  - Description: This method evaluates the quiz taken up by the user for a particular course
- void submitAnswer(String course_id,)
  - Description: This method allows the user to submit their answer for a particular quiz question

- int getTotalQuestions()
  - Description: This method returns the total number of questions in the quiz.

- double getQuizResult()
  - Description: This method calculates and returns the User's quiz result.

- void saveQuizResult(String username,double result)
  - Description: This method allows the system to save the User's quiz result to their profile
- Quiz getQuizHistory(String username)
  - Description: This method returns an array of all quiz results for a given username, allowing them to view their quiz history.

5. **Class name:** Account

List of Attributes:

SI .no	Attribute Name	Datatype	Access Type	Default Value
1	account_id	String	public	-
2	username	String	public	-
3	account_type	String	public	-
4	courses	List	public	-

Methods:
- boolean createAccount(String username,String password)
  - Description: This method creates a new account for the user with the specified username and password.
- boolean deleteAccount(username: string)
  - Description: This method deletes the account of the User with the specified username.
- boolean resetPassword(username: string, newPassword: string)
  - Description: This method allows the account holder to change password

- User getAccount(username: string)
  - Description:This method retrieves the account information for the user with the specified username.

- User getAllAccounts()
  - Description:This method retrieves the account information for all users in the system.
- boolean updateAccount(username: string, User user)
  - Description:This method allows a user to update the account information.

6. **Class name:** CertificateGenerator

List of Attributes:

Sl .no	Attribute Name	Datatype	Access Type	Default Value
1	course_name	String	public	-
2	username	String	public	-
3	course_id	String	public	-
4	result	Double	public	0.0

Methods :
- CertificateGenerator generateCertificate(User user,Course course)
  - Description: This method generates a certificate for a user who has successfully completed a course.
- void saveCertificate(CertificateGenerator Certificate)
  - Description: This method saves the generated certificate to the system.

7. **Class name**: Topic

List of Attributes:

Sl .no	Attribute Name	Datatype	Access Type	Default Value
1	topic_id	String	public	-
2	topic_desc	String	public	-
3	topic_content	Object content	public	-

Methods
- Topic ViewTopicContent()
  - Description: This method returns the content of the topic, such as text, images, videos, or audio if it exists for a topic.
- void completeTopic()
  - Description: This method allows the User to mark the topic as completed.
- double viewTopicProgress()
  - Description:This method returns the user's progress on the topic, such as the percentage completed or the time spent.

- void rateTopic(int rating)
  - Description:This method allows the user to rate the topic on a scale of 1 to 5. It takes the rating as a parameter and does not return any value.

Class Diagram: