

PROJECT OVERVIEW

Teachme Online Education Platform

Group Members:

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Introduction

The field of online education has grown quickly, offering learners a handy and adaptable means of picking up new skills and knowledge from any location in the globe. Our group has decided to create an online education portal that is similar to Udemy. This platform will provide alternatives for both certification and non-certification, along with a broad selection of courses covering multiple industries. Our excitement for technology and education, along with our goal to make a positive impact on the constantly changing field of online learning, are the driving forces for our participation in this initiative.

Problem Statement

A strong database is necessary for the online education sector to effectively handle the various components of a learning platform, including courses, student enrollments, tests, and ads. A well-structured database is essential to ensure smooth operation and an enhanced learning experience.

Solution

Our team will design and build a comprehensive database that supports user management, course catalog, student enrollments, assessments (tests and scores), advertisements, and certifications. This database will be the backbone of the online learning platform, ensuring efficient data management and quick access to information, which are crucial for the platform's success.

Requirements

- **User login/registration:** Secure user authentication and authorization.
- **Profile management for students and instructors:** Detailed profiles with bio, profile picture, and industry information.
- **Course catalog:** Courses categorized by industry, with options for certification or non-certification.
- **Enrollment management:** Tracking student enrollments and course progress.
- **Assessments:** Tests associated with courses, storing test details and student scores.
- **Advertisements:** Managing advertisements displayed on the platform.
- **Feedback and ratings for courses:** Collecting and storing feedback from students.

Proposed Tables:

- Users
- Profiles
- Courses
- Enrollments
- Tests
- Scores
- Advertisements
- CourseFeedback
- Certifications

Data Dictionary for Each Table

1. Users

Column	Data Type	Size	Default	PK/ FK	Required	Range	Sample Data	Notes	Constraints
UserID	NUMBER			PK	Y		1	Autonumbered identity	UNIQUE
FirstName	VARCHAR2	50			Y		'John'		
LastName	VARCHAR2	50			Y		'Doe'		
Email	VARCHAR2	100			Y		'john@example.com'		UNIQUE
Password	VARCHAR2	255			Y		'password123'	Hashed in application	
Role	VARCHAR2	20			Y		'Student'		CHECK (Role IN ('Student', 'Instructor'))

2. Profiles

Column	Data Type	Size	Default	PK/FK	Required	Range	Sample Data	Notes	Constraints
ProfileID	NUMBER			PK	Y		1	Autonumbered identity	UNIQUE
UserID	NUMBER			FK	Y		1		REFERENCES Users(UserID)
Bio	VARCHAR2	125					'Bio text'		
ProfilePicture	VARCHAR2						"https://..."	Stores image URL	
Industry	VARCHAR2	50					'Tech'		

3. Courses

Column	Data Type	Size	Default	PK/FK	Required	Range	Sample Data	Notes	Constraints
CourseID	NUMBER			PK	Y		1	Autonumbered identity	UNIQUE
InstructorID	NUMBER			FK	Y		1		REFERENCES Users(UserID)
Title	VARCHAR2	100			Y		'Course Title'		UNIQUE
Description	VARCHAR2	125					'Course Description'		
Industry	VARCHAR2	50					'Tech'		
IsCertified	CHAR	1	'N'		Y		'Y'		CHECK (IsCertified IN ('Y', 'N'))
Price	NUMBER	10,2	0.00		Y		99.99		

4. Enrollments

Column	Data Type	Size	Default	PK/FK	Required	Range	Sample Data	Notes	Constraints
EnrollmentID	NUMBER			PK	Y		1	Autonumbered identity	UNIQUE
CourseID	NUMBER			FK	Y		1		REFERENCES Courses(CourseID)
UserID	NUMBER			FK	Y		1		REFERENCES Users(UserID)
EnrollmentDate	DATE		SYSDATE		Y		2024-07-12		

5. Tests

Column	Data Type	Size	Default	PK/FK	Required	Range	Sample Data	Notes	Constraints
TestID	NUMBER			PK	Y		1	Auto numbered identity	UNIQUE
CourseID	NUMBER			FK	Y		1		REFERENCES Courses(CourseID)
TestTitle	VARCHAR2	100			Y		'Test Title'		UNIQUE
Test Description	VARCHAR2	255					'Test Description'		

6. Scores

Column	Data Type	Size	Default	PK/FK	Required	Range	Sample Data	Notes	Constraints
ScoreID	NUMBER			PK	Y		1	Autonumbered identity	UNIQUE
TestID	NUMBER			FK	Y		1		REFERENCES Tests(TestID)
UserID	NUMBER			FK	Y		1		REFERENCES Users(UserID)
Score	NUMBER	5,2			Y	0-100	95.00		

7. Advertisements

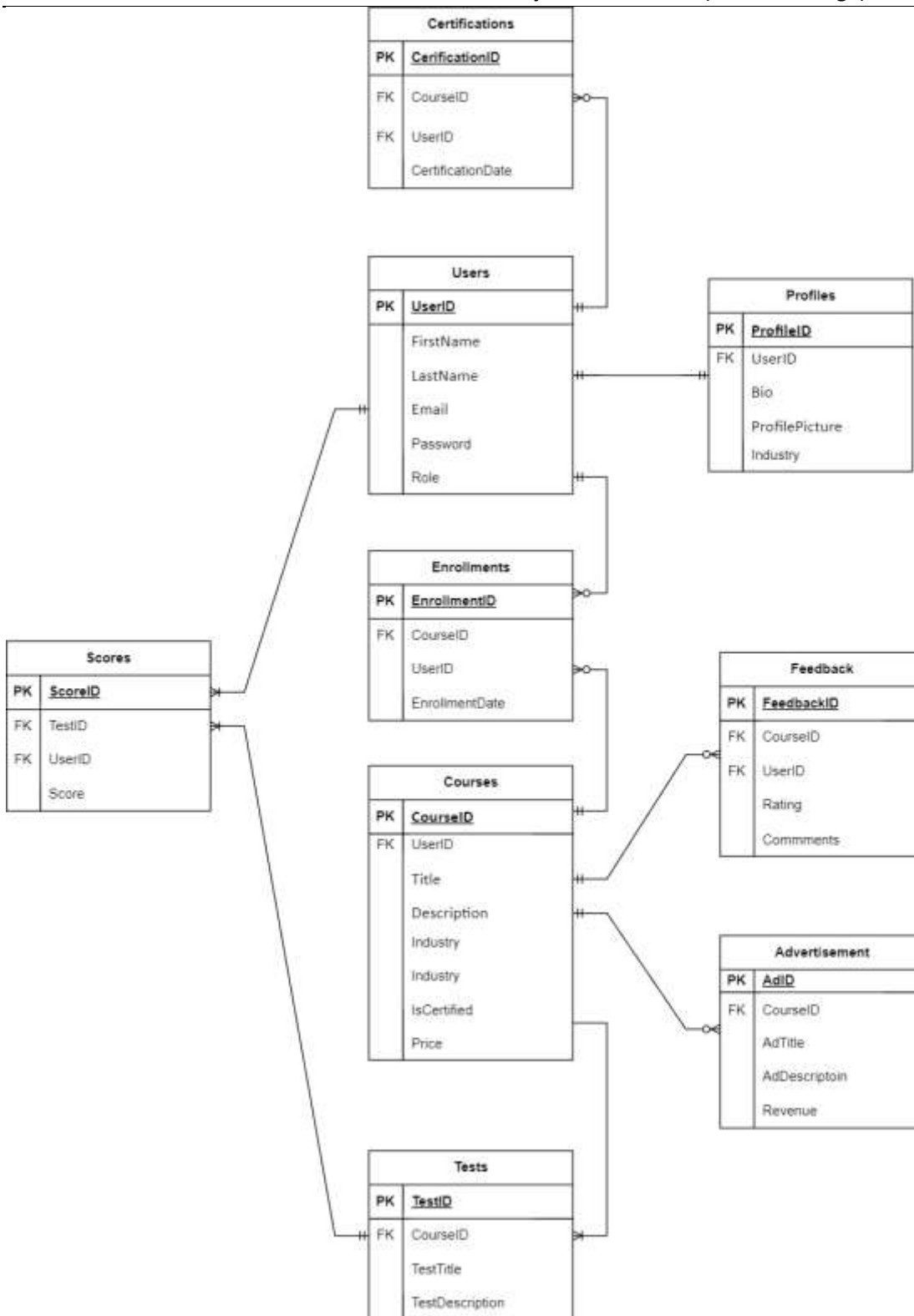
Column	Data Type	Size	Default	PK/FK	Required	Range	Sample Data	Notes	Constraints
AdID	NUMBER			PK	Y		1	Auto numbered identity	UNIQUE
CourseID	NUMBER			FK	Y		1		REFERENCES Courses(CourseID)
AdTitle	VARCHAR2	100			Y		'Ad Title'		UNIQUE
AdDescription	VARCHAR2	255					'Ad Description'		
Revenue	NUMBER	10,2	0.00		Y		500.00	Revenue in \$	

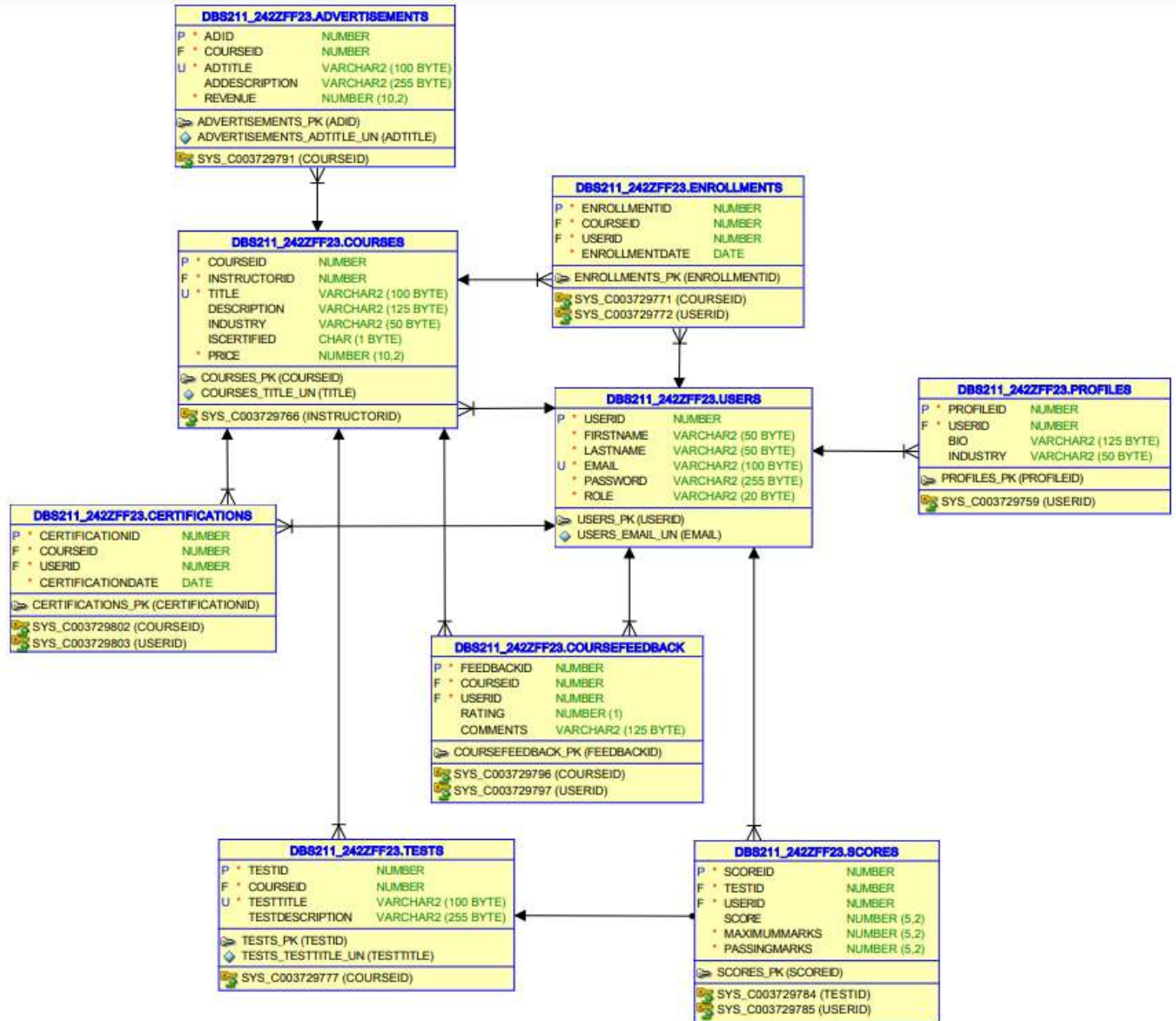
8. CourseFeedback

Column	Data Type	Size	Default	PK/FK	Required	Range	Sample Data	Notes	Constraints
FeedbackID	NUMBER			PK	Y		1	Autonumbered identity	UNIQUE
CourseID	NUMBER			FK	Y		1		REFERENCES Courses(CourseID)
UserID	NUMBER			FK	Y		1		REFERENCES Users(UserID)
Rating	NUMBER	1			Y	1-5	4		CHECK (Rating BETWEEN 1 AND 5)
Comments	VARCHAR2	125					'Great course!'		

9. Certifications

Column	Data Type	Size	Default	PK/FK	Required	Range	Sample Data	Notes	Constraints
CertificationID	NUMBER			PK	Y		1	Autonumbered identity	UNIQUE
CourseID	NUMBER			FK	Y		1		REFERENCES Courses(CourseID)
UserID	NUMBER			FK	Y		1		REFERENCES Users(UserID)
CertificationDate	DATE		SYSDATE		Y		2024-07-12	Format is YYYY-MM-DD	





Business Rules

1. User and Profiles

- Each user has one and only one profile.
- Each profile belongs to one and only one user.

2. User, Enrollments, and Courses (Enrollments is Bridge between User & Courses)

- Each user can have zero or many enrollments.
- Each enrollment belongs to one and only one user.
- Each course can have zero or many enrollments.
- Each enrollment is for one and only one course.

3. Course and Feedback

- Each course can receive zero or many feedbacks.
- Each feedback is for one and only one course.

4. Course and Advertisement

- Each course can have zero or many advertisements.
- Each advertisement is for one and only one course.

5. Course and Test

- Each course can have zero or many tests.
- Each test is for one and only one course.

6. Test and Scores

- Each test can have zero or many scores.
- Each score is for one and only one test.

7. Scores and User

- Each user can have zero or many scores.
- Each score belongs to one and only one user.

