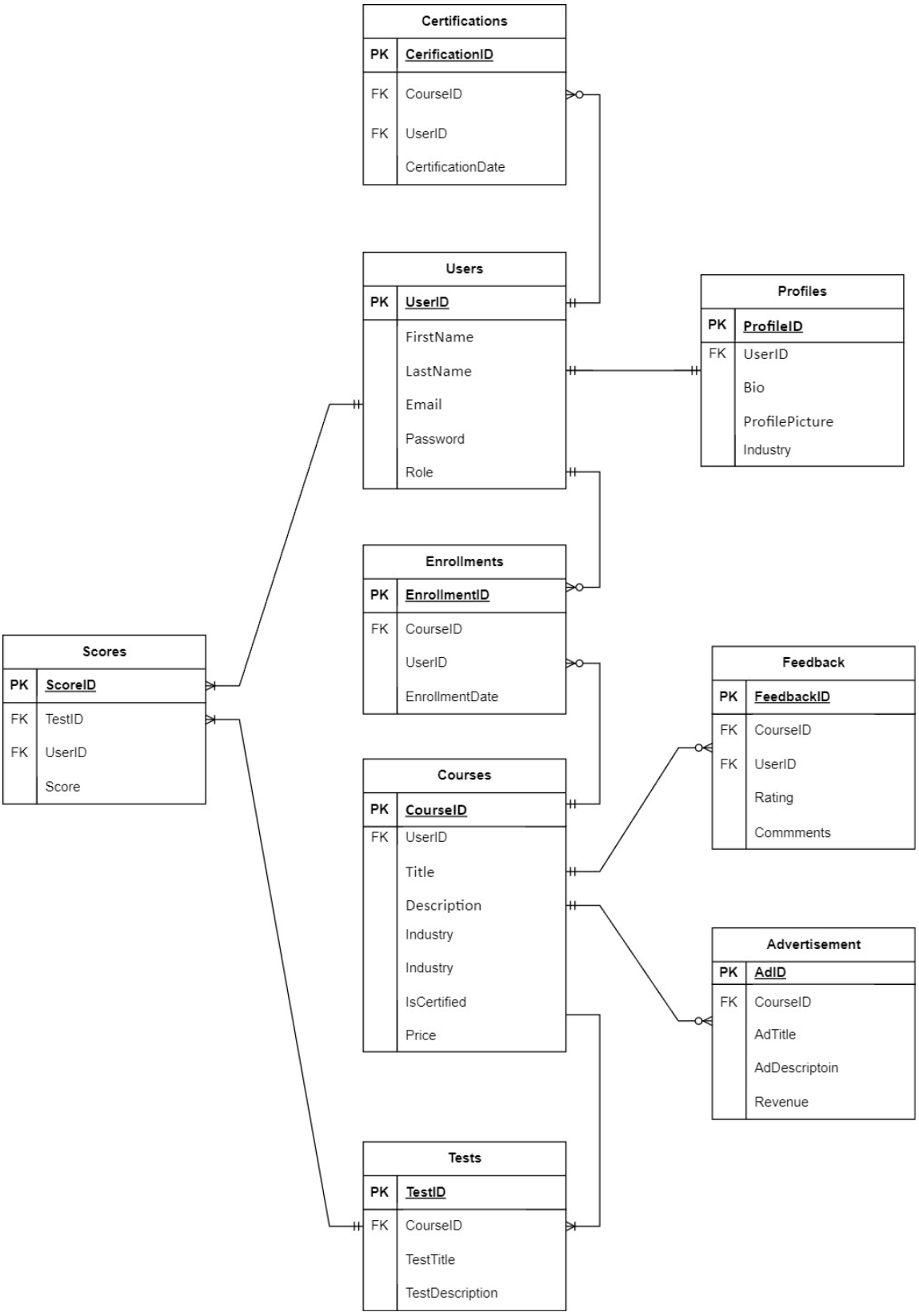
Online Education Platform

TEACHME

ERD – Entity Relationship Diagram



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.

Proposed Tables

1. Users
2. Profiles
3. Courses
4. Enrollments
5. Tests
6. Scores
7. Advertisements
8. CourseFeedback
9. 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	