CSCE 5350: Fundamentals of Database Systems

Quiz Management System - ER Diagram

Group – 13:

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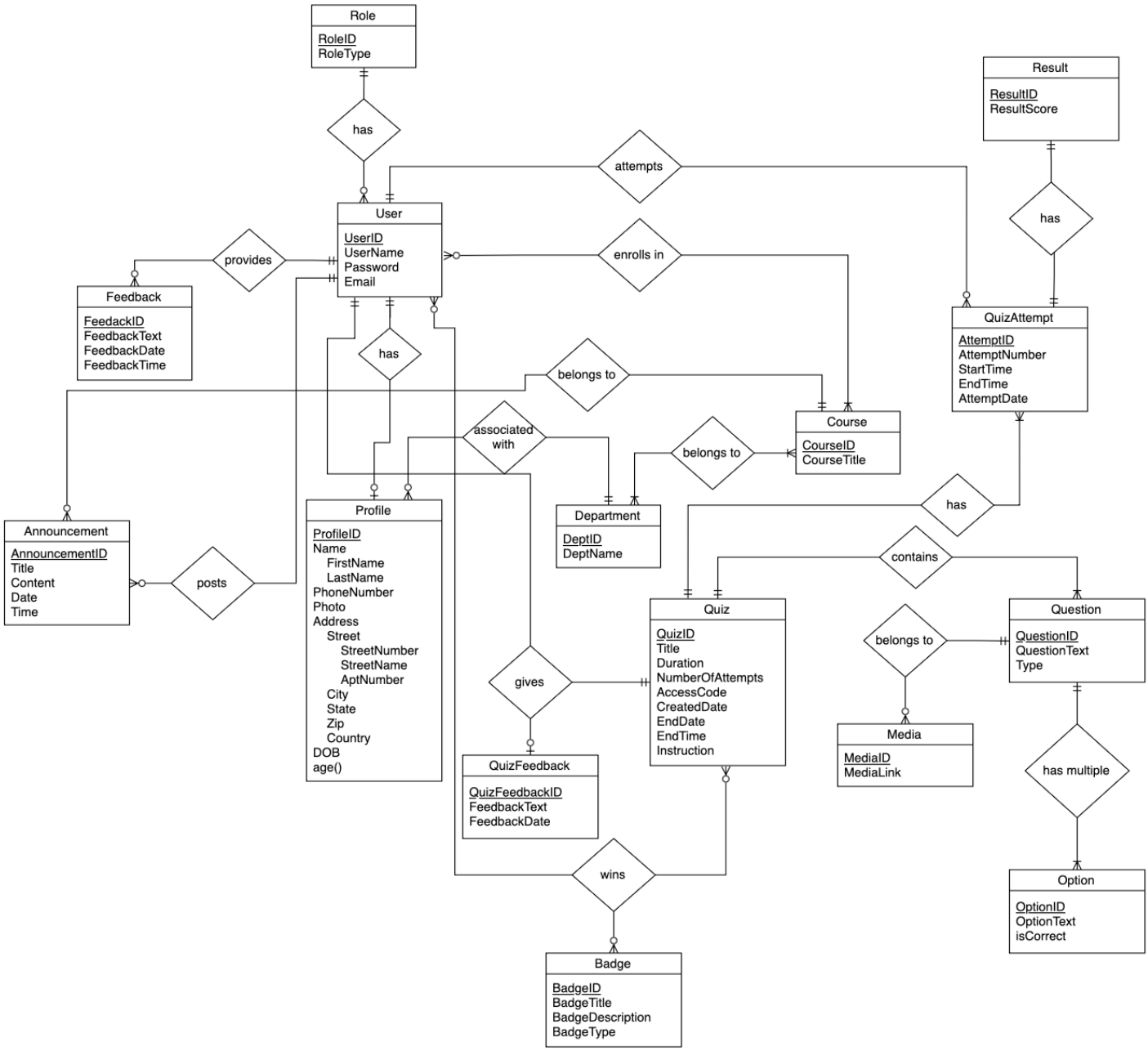

Assumption for Cardinality:

1. **Role-User Relationship –**
   One-to-Many: A role can be provided-to-zero or many users. A user is associated with one and only role.
2. **User-Feedback Relationship –**
   One-To-Many: A user can provide zero or many feedback. But a feedback can be given by one and only one user.
3. **User-Announcement Relationship –**
   One-to-Many: A user can post zero or many announcements. But an announcement will be made by one and only one user at a time.
4. **User-Profile Relationship –**
   One-to-One: A user has zero or one profile. A profile is associated with one and only user.
5. **User-QuizFeedback-Quiz Relationship –**
   a. **User-QuizFeedback -**
      One-to-One: A user can give zero or one quiz feedback for a particular quiz. Quiz feedback is associated with one and only one User for a particular quiz.
   b. **QuizFeeback-Quiz –**
      One-to-One: A quiz feedback is given to one and only one quiz for a particular user.
6. **User-Badge-Quiz Relationship -**
   a. **User-Badge –**
      Many-to-Many: Zero or many users can win zero or many badges associated with zero or many quizzes.
   b. **Badge-Quiz –**
      Many-to-Many: Zero or Many badges can be associated with zero or many quizzes won by zero or many users.
7. **User-QuizAttempt Relationship –**
   One-to-Many: A user can have zero or many quiz attempts. A quiz attempt is associated with only one user.
8. **User-Course Relationship –**
   Many-to-Many: A users should enroll in one or many course. A course can be enrolled by zero or many users.

9. **QuizAttempt-Result –**
   One-to-One: A Quiz Attempt has one and only one Result. One and Only result is associated with a quiz attempt.
10. **Profile-Department Relationship –**
    Many-to-One: A department can be associated with zero or many profiles. But A profile is associated with one and only department.
11. **Department-Course Relationship –**
    Many-to-Many: A Department will have to one or many courses. A course will belong to one or many departments.
12. **Course-Announcement Relationship –**
    One-to-Many: An announcement must belong to one and only one course. But A course can have zero or many announcements.
13. **QuizAttempt-Quiz Relationship**
    Many-to-One: A QuizAttempt will be associated with one and only Quiz. But A Quiz should have one or many attempts.
14. **Quiz-Question Relationship –**
    One-to-Many: A quiz must contain one or many questions. But a question is associated with one and only one quiz.
15. **Question-Media Relationship –**
    One-to-Many: A question can have zero or many Media files. But a media belongs to one and only one question.
16. **Question-Option Relationship –**
    One-to-Many: A question will have one or many options. An option is associated with one and only one Question.

Entities and Attribution Description:

1. Role:

- RoleID: (Primary key, Integer)
- RoleType: (Varchar)

2. User:

- UserID: (Primary key, Integer)
- UserName: (Varchar)

- Password: (Varchar)
- Email: (Varchar)
- RoleID: (Foreign key referencing Role(RoleID))

3. Profile:

- ProfileID: (Primary key, Integer)
- FirstName: (Varchar)
- LastName: (Varchar)
- PhoneNumber: (Varchar)
- Photo: (Varchar - URL or file path)
- StreetNumber: (Varchar)
- StreetName: (Varchar)
- AptNumber: (Varchar)
- City: (Varchar)
- State: (Varchar)
- Zip: (Varchar)
- Country: (Varchar)
- DOB: (Date)
- Age(): (Derived attribute - not stored in the database, can be calculated based on DOB)
- UserID: (Foreign key, Integer)
- DepartID: (Foreign Key, Varchar)

4. Department:

- DeptID: (Primary key, Varchar)
- DeptName: (Varchar)

5. QuizFeedback:

- FeedbackID: (Primary key, Integer)
- FeedbackText: (Varchar)
- FeedbackDate: (Date)
- UserID: (Foreign key referencing User(UserID))
- QuizID: (Foreign key referencing Quiz(QuizID))

6. Announcement:

- AnnouncementID: (Primary key, Integer)
- Title: (Varchar)
- Content: (Text)
- DateTime: (Datetime)
- UserID: (Foreign key referencing User(UserID)) [user who made the announcement]
- CourseID: (Foreign key referencing Course(CourseID))

7. Quiz:

- QuizID: (Primary key, Integer)
- Title: (Varchar)
- Duration: (Integer - representing minutes)
- NumberOfAttempts: (Integer)
- AccessCode: (Varchar)
- CreatedDate: (Date)
- EndDate: (Date)
- EndTime: (Time)
- Instructions: (Varchar)

8. Badge:

- BadgeID: (Primary key, Integer)
- BadgeTitle: (Varchar)
- BadgeDescription: (Varchar)
- BadgeType: (Varchar)

9. Result:

- ResultID: (Primary key, Integer)
- ResultScore: (Integer)
- AttemptID: (Foreign key referencing QuizAttempt(AttemptID))

10. QuizAttempt:

- AttemptID: (Primary key, Integer)
- AttemptNumber: (Integer)
- StartTime: (Time)
- EndTime: (Time)
- AttemptDate: (Date)
- UserID: (Foreign key referencing User(UserID))
- QuizID: (Foreign key referencing Quiz(QuizID))

11. Course:

- CourseID: (Primary key, Integer)
- CourseTitle: (Varchar)

12. Media:

- MediaID: (Primary key, Integer)
- MediaLink: (Varchar)
- QuestionID: (Foreign key referencing Question(QuestionID))

13. Question:

- QuestionID: (Primary key, Integer)
- QuestionText: (Text)
- Type: (Varchar)
- QuizID: (Foreign key referencing Quiz(QuizID))

14. Option:

- OptionID: (Primary key, Integer)
- OptionText: (Text)
- IsCorrect: (Boolean)
- QuestionID: (Foreign key referencing Question(QuestionID))

15. Feedback:

- FeedbackID: (Primary key, Integer)
- FeedbackText: (Text)

- FeedbackDate: (Date)
- FeedbackTime: (Time)
- UserID: (Foreign key, Integer)

Many to Many Relation Tables with User and Course:

16. Enrolls

- UserID: (Foreign key referencing User(UserID))
- CourseID: (Foreign key referencing Course (CourseID))
- Primary Key(UserID, CourseID)

17. Belongs_To

- CourseID: (Foreign key referencing Course (CourseID))
- DeptID: (Foreign key referencing Course (DeptID))
- Primary Key(DeptID, CourseID)

18. Wins

- QuizID: (Foreign key referencing Quiz(QuizID))
- BadgeID: (Foreign key referencing Badge(BadgeID))
- UserID: (Foreign key referencing User(UserID))
- Primary Key(BadgeID,UserID, CourseID)

Note: The above details may change as the project progresses.