Lab - Work - 3

List out the entities and identify the relationship between them. Also, identify related attributes supposed to be recorded while considering the normalization rule

To identify the entities and relationships in a database schema, as well as the related attributes, we take content of "Online Quiz Application".

1. Entities

1.1 User

Attributes: UserId (PK), UserName, Email, Password, firstName, LastName, UserType, ProfilePicture, Registration Date, enrollId (FK)

1.2 Quiz

Attributes: QuizId (PK), Title, Description, Category, CreatorId, CreatedDate

1.3 Question

Attributes: QuestionId, Text, Type

1.4 Option

Attributes: OptionId, QuestionId (FK), Text, isCorrect

1.5 QuizAttempt

Attributes: AttemptId (PK), UserId, QuizId, StartTime, EndTime, Score, Status.

1.6 Category.

Attributes :- CategoryId, UserId, CourseId, QuizId

1.7 Course

Attributes : CourseId, CourseName, Description,

1.8 Enrollment

Attributes : enrollmentId, StudentId, CourseId, EnrollmentDate

2. Relationships

2.1 User-Quiz Relationship

a. User can create multiple Quizzes.
b. User can attempt multiple Quizzes.

2.2 Quiz - Question Relationship

a. A quiz can have multiple questions.
b. a question can belong to one quiz only

2.3 Question Option Relationship

a. A question can have multiple option

2.4 Quiz - Category Relationship

a. A quiz can belong to one category

2.5 Category-Course Relationship

a. A course can have multiple category quizzes

2.6 Enrollment - Course Relationship

a. A student can enroll in ~~one~~ multiple courses

3. E-R Diagram.

Entities and relationships:

- **USER** (attributes: userid, usrType, email, password, reg_date, username)
- **QUIZ** (attributes: quizid, title, createdate, description)
- **CATEGORY** (attributes: category_id)
- **COURSE** (attributes: courseid, coursename)
- **QUESTION** (attributes: text, type, questionid)
- **OPTION** (attributes: optionid, text, iscorrect)
- **QUIZ ATTEMPT** (attributes: start-time, status, attemptid, score, end-time)
- **ENROLLMENT** (attributes: enroll_id, enrol date)

Relationships:

- USER **create/attempt** QUIZ (1 — M)
- USER **has** QUIZ ATTEMPT (1 — M)
- QUIZ **belongs to** CATEGORY (1 — 1)
- CATEGORY **can have** COURSE (M — N) (1, 1, N)
- QUIZ **consist of** QUESTION (1 — M)
- QUESTION **requires** OPTION (1 — M)
- COURSE **of student in** ENROLLMENT (N — M)