Relational Model and Schema

Entity Sets:

User(name: Varchar(255), email : Varchar(255), password: Varchar(255), userId : Integer (Auto-Increment), Role : Varchar(255))

Comments(courseId: Integer, userId : Integer, comment : Varchar(255), score : Double, commentId : Integer (Auto-Increment), prof_id : Integer)

Course(courseId : Integer (Auto-Increment), course-name : Varchar(255), courseDept : Varchar(255))

Enrollment(enrollment-id : Integer (Auto-Increment), courseId: Integer, userId : Integer, prof_id : Integer, term : Varchar(255), year : Integer)

Professor(prof-id - Integer (Auto-Increment), prof-name : Varchar(255))

Relations:

Gives(userId : Integer, commentId : Integer)

Provides (userId : Integer, enrollment-id : Integer)

Part of (courseId : Integer, commentId : Integer)

Part of (courseId : Integer, enrollment-id : Integer)

Part of (enrollment-id: Integer, prof-id: Integer)

Part of (prof-id : Integer, commentId : Integer)

Relation Descriptions:

1) **Gives**: The relationship between User and Comments. One user can give many comments but one comment belongs to only one user. We can have comments that are identical but one comment can only be owned by one user. There is a many-to-one relationship.

2) **Provides**: The relationship between User and Enrollment. One user can be enrolled many times into many courses. One enrollment (one row in the Enrollment table) belongs to one User at a time. Thus, there is also a many-to-one relationship.

3) **Part of**: The relationship between course and comments. There is a many-to-one relationship over here because one course can have many comments but one individual comment (one row in the Comment table) can only be for one course at a time.

4) **Part of**: The relationship between course and enrollment. There is a many-to-one relationship because one course can have many enrollments by different users but one enrollment (one row in the enrollment table) can only be towards one course at a time.

5) **Part of**: The relationship between enrollment and professor. There is a many-to-one relationship because a professor is part of many enrollments but one enrollment has only one professor in each row of the table.

6) **Part of**: The relationship between professor and comment. There is a many-to-one relationship because one professor is a part of many comments given by users to the course that the professor teaches but one row in the comment table can only have one professor's name.