Entities and Attributes

- **Instructor**

  - Attributes: InstructorID (PK), Email, PhoneNumber, Name, Photo, Subjects, Qualifications, Bio, PaymentMethod, Password

- **Student**

  - Attributes: StudentID (PK), Email, PhoneNumber, Name, GradeLevel, ProfilePicture, Password

- **Course**

  - Attributes: CourseID (PK), InstructorID (FK), Title, Description, Subject, Duration, Price

- **Lesson**

  - Attributes: LessonID (PK), CourseID (FK), Title, VideoURL, SupportingFiles (e.g., PDFs, PPTs), OrderNumber

- **Assignment**

  - Attributes: AssignmentID (PK), CourseID (FK), LessonID (FK, optional), Title, Type (Essay, True/False, MCQ, Matching), Deadline, Instructions, MaxGrade

- **Submission**

  - Attributes: SubmissionID (PK), AssignmentID (FK), StudentID (FK), SubmittedFiles, TextAnswer, SubmissionDate, Grade, Feedback

- **Exam**

  - Attributes: ExamID (PK), CourseID (FK), LessonID (FK, optional), Title, Type (MCQ, True/False, Essay), Duration, MaxGrade, IsTimed

- **ExamResult**

  - Attributes: ResultID (PK), ExamID (FK), StudentID (FK), Score, CompletionDate

- **Revision**

  - Attributes: RevisionID (PK), CourseID (FK), Title, VideoURL, SupportingFiles, ScheduleDate (for live sessions)

- **Comment**

  - Attributes: CommentID (PK), LessonID (FK), StudentID (FK), InstructorID (FK), Content, CommentDate, Reply (optional)

- **Enrollment**

  - Attributes: EnrollmentID (PK), StudentID (FK), CourseID (FK), EnrollmentDate, PaymentStatus

Relationships

- **Instructor** teaches **Course** (1-to-Many)
- **Student** enrolls in **Course** via **Enrollment** (Many-to-Many with additional attributes)
- **Course** contains **Lesson** (1-to-Many)
- **Course** has **Assignment** (1-to-Many)
- **Lesson** has **Assignment** (1-to-Many, optional)
- **Student** submits **Submission** for **Assignment** (Many-to-Many with additional attributes)
- **Course** has **Exam** (1-to-Many)
- **Lesson** has **Exam** (1-to-Many, optional)
- **Student** takes **Exam** via **ExamResult** (Many-to-Many with additional attributes)
- **Course** has **Revision** (1-to-Many)
- **Student** posts **Comment** under **Lesson** (Many-to-Many with additional attributes)
- **Instructor** responds to **Comment** (1-to-Many)

```
[Instructor] ----(1,M)---- [Course] ----(1,M)---- [Lesson]
 | InstructorID (PK)        | CourseID (PK)         | LessonID (PK)
 | Email                    | InstructorID (FK)     | CourseID (FK)
 | Name                     | Title                 | Title
 | PaymentMethod            | Price                 | VideoURL
                            |
                            |----(1,M)---- [Assignment]
                            |                | AssignmentID (PK)
                            |                | CourseID (FK)
                            |                | LessonID (FK, opt)
                            |                | Title
                            |                | Deadline
                            |
                            |----(1,M)---- [Exam]
                            |                | ExamID (PK)
                            |                | CourseID (FK)
                            |                | LessonID (FK, opt)
                            |                | Title
                            |                | MaxGrade
                            |
                            |----(1,M)---- [Revision]
                            |                | RevisionID (PK)
                            |                | CourseID (FK)
                            |                | Title
                            |
[Student] ----(M,M)---- [Enrollment] ----(M,M)---- [Course]
 | StudentID (PK)          | EnrollmentID (PK)
 | Email                   | StudentID (FK)
 | Name                    | CourseID (FK)
 | GradeLevel              | EnrollmentDate
 |
 |----(M,M)---- [Submission]
 |                | SubmissionID (PK)
 |                | AssignmentID (FK)
 |                | StudentID (FK)
 |                | Grade
 |
 |----(M,M)---- [ExamResult]
 |                | ResultID (PK)
 |                | ExamID (FK)
 |                | StudentID (FK)
 |                | Score
 |
 |----(M,M)---- [Comment] ----(M,1)---- [Instructor]
 |                | CommentID (PK)
 |                | LessonID (FK)
 |                | StudentID (FK)
 |                | InstructorID (FK)
 |                | Content
```