

Data Base Explained:

Table structure and relation

User Table

Attribute	Type	Description
UserID	INT (PK)	Unique identifier for each user
FirstName	VARCHAR	User's first name
LastName	VARCHAR	User's last name
Email	VARCHAR	User's email
Password	VARCHAR	Encrypted password
UserType	INT	1 = Admin, 2 = Student
EnrollmentDate	DATE	Date student was enrolled (only for students)

2. Course Table

Attribute	Type	Description
CourseID	INT (PK)	Unique identifier for each course
CourseName	VARCHAR	Name of the course
Description	TEXT	Detailed description of the course
MaxSeats	INT	Maximum number of students allowed
CurrentSeats	INT	Number of students currently enrolled
StartDate	DATE	Course start date
EndDate	DATE	Course end date
AdminID	INT (FK)	Foreign key from Admin table

3. Enrollment Table

Attribute	Type	Description
EnrollmentID	INT (PK)	Unique identifier for each enrollment
StudentID	INT (FK)	Foreign key from Student table

CourseID	INT (FK)	Foreign key from Course table
EnrollmentDate	DATE	Date the student enrolled in the course
CompletionStatus	VARCHAR	Status of the enrollment (e.g., Active, Completed)

Entity Relationships and Mappings

Primary Table	Related Table	Primary Key (PK)	Foreign Key (FK)	Relationship Type
User	Course	UserID (PK)	AdminID (FK)	One-to-Many (An admin manages multiple courses)
User	Enrollment	UserID (PK)	StudentID (FK)	One-to-Many (A student can enroll in multiple courses)
User	Progress	UserID (PK)	StudentID (FK)	One-to-Many (A student has progress records for multiple courses)
Course	Enrollment	CourseID (PK)	CourseID (FK)	One-to-Many (A course can have multiple enrollments)

Explanation:

- **Student** has a one-to-many relationship with both **Enrollment** and **Progress**: A student can enroll in multiple courses and have multiple progress records.
- **Course** has a one-to-many relationship with **Enrollment** and **Progress**: A course can have multiple enrollments and progress records.

SCRIPTS

Comit Scripts

Create Users Table (Admins and Students)

```
CREATE TABLE Users (  
    UserID INT PRIMARY KEY IDENTITY(1,1),  
    FirstName VARCHAR(20) NOT NULL,  
    LastName VARCHAR(20) NOT NULL,  
    Email VARCHAR(30) NOT NULL,  
    Password VARCHAR(20) NOT NULL,  
    UserType INT NOT NULL, -- 1 for Admin, 2 for Student  
    EnrollmentDate DATE NULL -- Only applicable for students  
);
```

Create Courses Table

```
CREATE TABLE Courses (  
    CourseID INT PRIMARY KEY IDENTITY(1,1),  
    CourseName VARCHAR(20) NOT NULL,  
    Description VARCHAR(500) NOT NULL,  
    MaxSeats INT NOT NULL,  
    CurrentSeats INT NOT NULL,  
    StartDate DATE NOT NULL,  
    EndDate DATE NOT NULL,  
    AdminID INT, -- Foreign Key from Users table where UserType  
= 1 (Admin)  
    CONSTRAINT FK_AdminID FOREIGN KEY (AdminID) REFERENCES  
Users(UserID)  
);
```

Create Enrollments Table

```
CREATE TABLE Enrollments (  
    EnrollmentID INT PRIMARY KEY IDENTITY(1,1),  
    StudentID INT, -- Foreign Key from Users table where  
UserType = 2 (Student)  
    CourseID INT, -- Foreign Key from Courses table  
    EnrollmentDate DATE NOT NULL,  
    CompletionStatus VARCHAR(20) NOT NULL, -- 1 is active, 2 is  
complete  
    CONSTRAINT FK_StudentID FOREIGN KEY (StudentID) REFERENCES  
Users(UserID),
```

```
        CONSTRAINT FK_CourseID FOREIGN KEY (CourseID) REFERENCES  
Courses(CourseID)  
);
```

Rollback Scripts

Drop Enrollments Table

```
DROP TABLE IF EXISTS Enrollments;
```

Drop Courses Table

```
DROP TABLE IF EXISTS Courses;
```

Drop Users Table

```
DROP TABLE IF EXISTS Users;
```