Resolving a Many-to-Many Relationship

- What is it?

- Why do I have to Resolve it?

- How do I resolve it?

Student

StudentID
LastName FirstName Phone Address

Student

StudentID
LastName FirstName Phone Address

Course

CourseID
Description Credits

Student

StudentID
LastName FirstName Phone Address

Course

CourseID
Description Credits

Student

StudentID

LastName
FirstName
Phone
Address

Course

CourseID

Description
Credits

Registers For

Student

StudentID
LastName FirstName Phone Address

Course

CourseID
Description Credits

Registers For

Is Attended By

Student

StudentID
LastName
FirstName
Phone
Address

Course

CourseID
Description
Credits

Registers For

Is Attended By

This is a Many-to-Many relationship. As such, it cannot be
Implemented in a relational database. Why is that?

Student

StudentID
LastName FirstName Phone Address

Registers For

Is Attended By

Course

CourseID
Description Credits

How would you set up the foreign key relationships necessary to link a student and his/her courses, or a course and its students?

Student

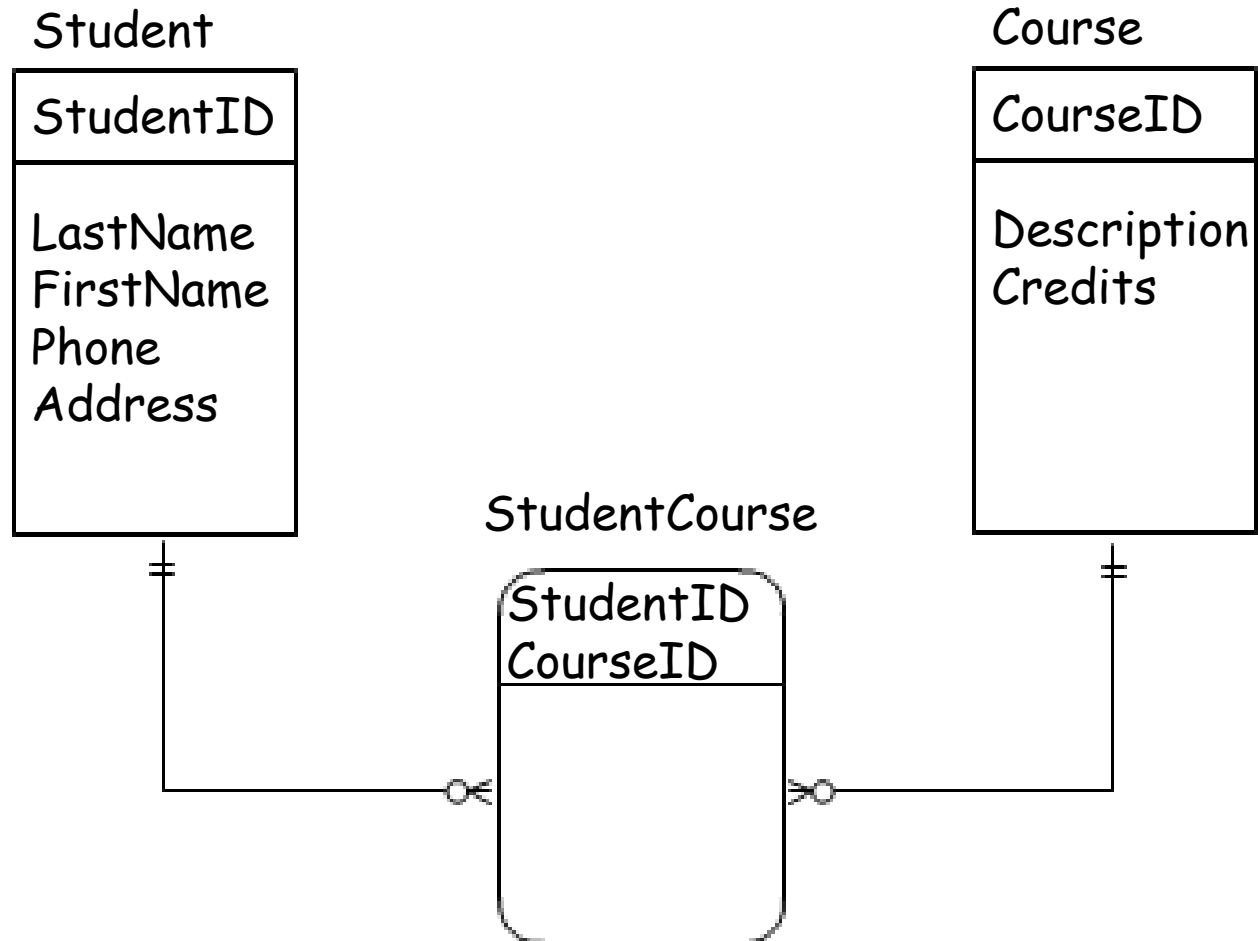| StudentID |
|-----------|
| LastName
FirstName
Phone
Address |

Course

CourseID
Description Credits

Registers For

Is Attended By

You must follow the rules for **First Normal Form**. You cannot add multiple "CourseID" attributes to the "Student" entity. You cannot add multiple "StudentID" attributes to the "Course" entity. Doing so would violate **First Normal Form**.

Student

StudentID
LastName FirstName Phone Address

Course

CourseID
Description Credits

Registers For

Is Attended By

How to resolve this?

Create an "**Association**" Entity.

Student

StudentID
LastName
FirstName
Phone
Address

Course

CourseID
Description
Credits

StudentCourse

StudentID
CourseID

Association Entity

- Created to resolve a Many-to-Many relationship
- A dependent Child between two independent Parents
- Relationship to parents is mandatory
- A composite primary key, a portion inherited from each parent
- Rounded corners indicate dependency