ER Model
Mapping ER to Relational

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Mapping ER Schemas to Relations
Recap

1. create relation schemas from entity types
2. create relation schemas from relationship types
3. identify keys
4. identify foreign keys
5. optimize
Problem: we need to design the ER schema to represent information about students, courses, teachers and departments during a SINGLE academic semester.

- **Entity Types**
  - **Student**: Name, Address
  - **Course**: Name, Number
  - **Teacher**: Name
  - **Faculty**: Rank
  - **Dept**: Name, Address

- **Relationship Types**
  - Faculty IS A Teacher
  - Students may enroll in multiple courses
  - Courses may have multiple students enrolled
  - For each enrolled course, a student receives a grade
  - Teachers may teach multiple courses
  - A course is taught by a single teacher
  - A course is offered by a unique department
  - Departments may offer multiple courses