CS275 – Intro to Databases

Details of ER Modeling

Chap. 2.4 – 2.8
Relationship

- An association between at least two entities
  - Can have properties of their own (descriptive attributes)
Key Constraint

- There can be only one!
- One to many or one to one
- A department uniquely determines employee
What About Ternary?

Employee:
- **ssn**
- **name**
- **bdate**

Departments:
- **did**
- **dname**
- **budget**

Locations:
- **address**
- **capacity**

Relationship:
- **since**
- **Works_In**
Total and Partial Participation in a Relationship

• Total – Every entity of a set must be part of the relationship
• Partial – Not total
• What are some examples?

Diagram:
- Partial in R
- R
- Total in R
Entity-Relationship Model (ER Model)

- Weak entity types
  - Cannot be identified without an owner entity
  - Has a partial key to identify a record once the owner’s key is given
Class Hierarchies

ISA
An Example

Employee

SSN

ISA

Hourly Wage

Hourly

Salary

Yearly Salary
Coverage and Overlap Constraints

• Overlap – Whether or not an instance can belong to multiple subclasses

• Coverage – Whether or not an instance must belong to a subclass
* I may have made this notation up on the fly.
Aggregation

• Basically a relationship of relationship
The Tough Decisions

• Entity Versus Attribute
  – Is there additional info not captured in the attribute
  – Can there be more than one
  – Is it big and repeated
Aggregation vs Ternary

Employees

Covers

Dependents

*don’t do this

Policies
Any questions?

• Like, if I gave you a quiz could you do this stuff?
No More Questions?

- K, I warned you
Quiz

• Professors (SSN, Name)
• Courses (CourseID, Title)
• Every instance is recorded by semester
• We should be able to see if a professor has ever taught CS161

1. Professors teach the same course in several semesters
2. Every professor teaches at least one course
3. Every professors teaches exactly one course and every course is taught by exactly one professor