Database Management Systems

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Announcements

- Practice homework is posted, make sure we look at it before attempting graded homework
- Graded homework is also posted
  - Group portion due 9/21 at 3:30pm
  - Individual portion due 9/22 at midnight

ER Diagram for a University Enterprise

- Can everything be expressed in an ER diagram?
  - Nah, keep that in mind for the homework
- Strong entity sets
  - Strong entity sets have a primary key, they don't have to borrow attributes from other entities?
  - Can form a key with their own attributes
  - Single line rectangles represent strong entity sets in an ER diagram
- A double lined diamond means that it is an identifying relationship between an identifying entity set a weak entity set
- Why do I struggle so hard to pay attention in this class?

Design Issues

- Should we use entity sets or attributes to describe something?
  - For example, should you have instructor as an entity with a phone number attribute or should you have an entity set for instructor and phone information with a relationship set in between?
    - Benefit of making an entity set for phone is being able to have information *about the phone number* such as the number itself and the location (don't know why you can't get that from area code, maybe she was desparate for an example)
- Using an entity set vs a relationship set
  - A guideline you can use is to designate relationship sets fro *describing an action* between entities
- Binary vs n-ary relationship sets
  - You can replace any nonbinary relationship set by a number of distinct binary relationships sets
  - You probs don't want to though because n-ary relationship sets show that seeral entities can participate in a single relationship more clearly than a series of binary relationship sets
- You want to take the placement of relationship attributes into consideration
  - is date an attribute of advisor or student?

Redundant Attributes

- Instructor entity set has a handful of attributes including department name
- There is also a department entity set
- There is a relationship inst_dept that relates the instructor to the department

- Having the department attribute in the instructor entity is redundant because there is a relationship that connects instructor to department

Extended ER Features: Specialization

- Got distracted looking at chord charts for my favorite song rn but I'm back
- Top down process: you can designate subgroups within an entity set that are distinctive from other entities in the set
- The subgroups turn into lower level entity sets
- I missed the rest
- I'm so sorry that my notes for this class suck fam
- Ah, you have a person entity set. Person breaks into:
  - student, employee. Employee breaks into:
    - instructor, secretary
  - person is a higher level entity sets, employee/student are lower level entity sets, instructer/secretary are also lower level entity sets
- An empty arrow represents an "is a" relationship
  - employees and students are people, so they have an empty arrow pointing to the person entity set

Aggregation

- Apparently this is confusing so I'll start trying to pay attention
- This is the relationship betweeen a relationship set and an entity set
- Example:
  - What we want: some students, while working on a project guided by an instructor, will be evaluated
  - Ideally, we want to have a relationship between the project guide and the evaluation relationship sets, but that's a no no (because it's a relationship between two relationship sets)
  - The solution is to aggregate and create an abstract entity set
    - This is done by creating a box around a set of entity/relationship sets
    - Then you can connect the abstract entity set to the evaluation relationship set

Summary: ER Design Decisions

- Should we use an attribute or an entity set to represent an object?
- Is the real world concept better represented by an entity set or a relationship set?
- Should you use an n-ary relationship or a series of binary relationships?
- Should you use a strong or weak entity set?
- Using specialization or generalization
- Using aggregation