CIS560

Design Patterns & Practices
Part 2

0

Subclasses – Three Approaches

- Object-Oriented Approach
  A table for each type, and possibly a general type
- Nullable columns
  A single table with nullable columns
- E/R Style
  Use a supertype or “base class”

1

Subclasses – OO Approach

- Common attributes in all types
- No foreign keys
- Tuples inserted in applicable type
  - No base type
  - May need a general type if tuples only have common attributes

Subclasses – Nullable Columns

- A single table
- Non-nullable columns for shared attributes
- Nullable columns for attributes of all other types

Subclasses – E/R Style

- A single supertype (base class)
  - Contains the key
  - Contains the common attributes
  - Contains all tuples
- Each subtype
  - Contains the key
  - Contains only specific attributes
  - Contains only tuples of that that subtype

Union Types

- Sometimes relationships are mutually exclusive
- Consider these entities:
  - Folder
  - User
  - Group
- A Folder can be owned by a User or Group
- How do you prevent a folder from being owned by both types?

Weak Entity Sets

- Their key comes from other classes
- Examples
  - Order Lines
  - Tracks for an Album
- Often use one-to-many relationships
  - With minimum of one rather than zero
  - Logical only – cannot be enforced

Multiple Path Problem

- Occurs when relationships provide multiple paths to a single entity.
- Depending on which joins or predicates used, you can get different results.
- Solution 1: Remove a foreign key reference.
  - Query writer only has one option
  - Attributes from referenced table would be duplicated
- Solution 2: Duplicate key only and use composite foreign keys