Database Management Essentials

Notation for Entity Relation Diagrams

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Database Development Goals

넓은 의미

- Common vocabulary 구축
- Business rule 정의
- Ensure data quality
- 효율적인 implementation까지

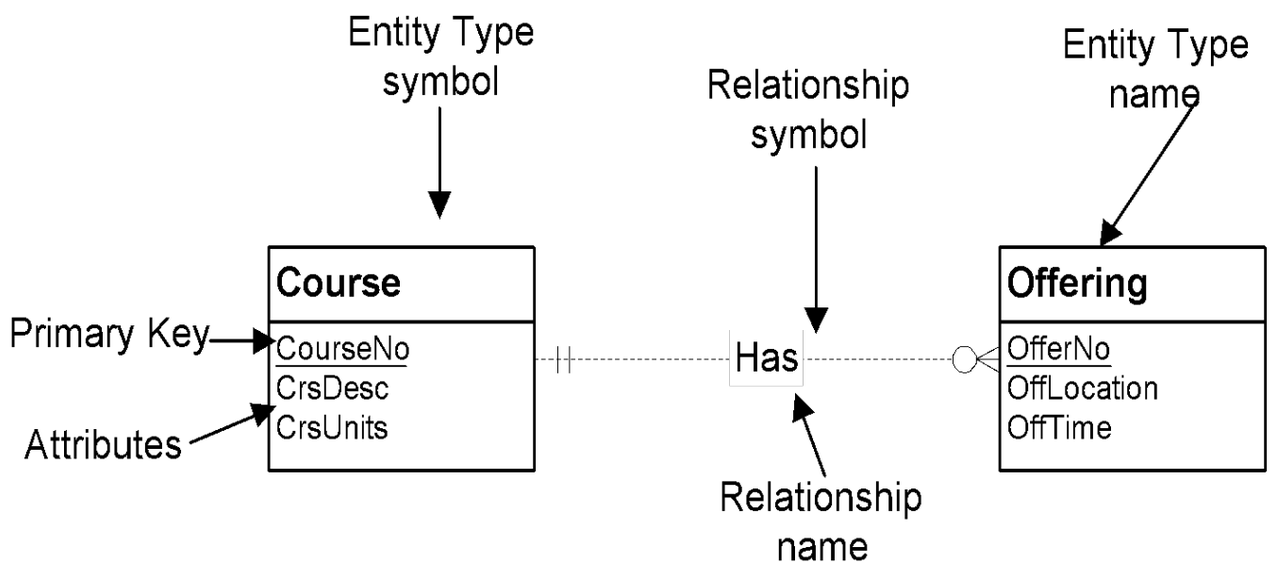
DB Dev Phase

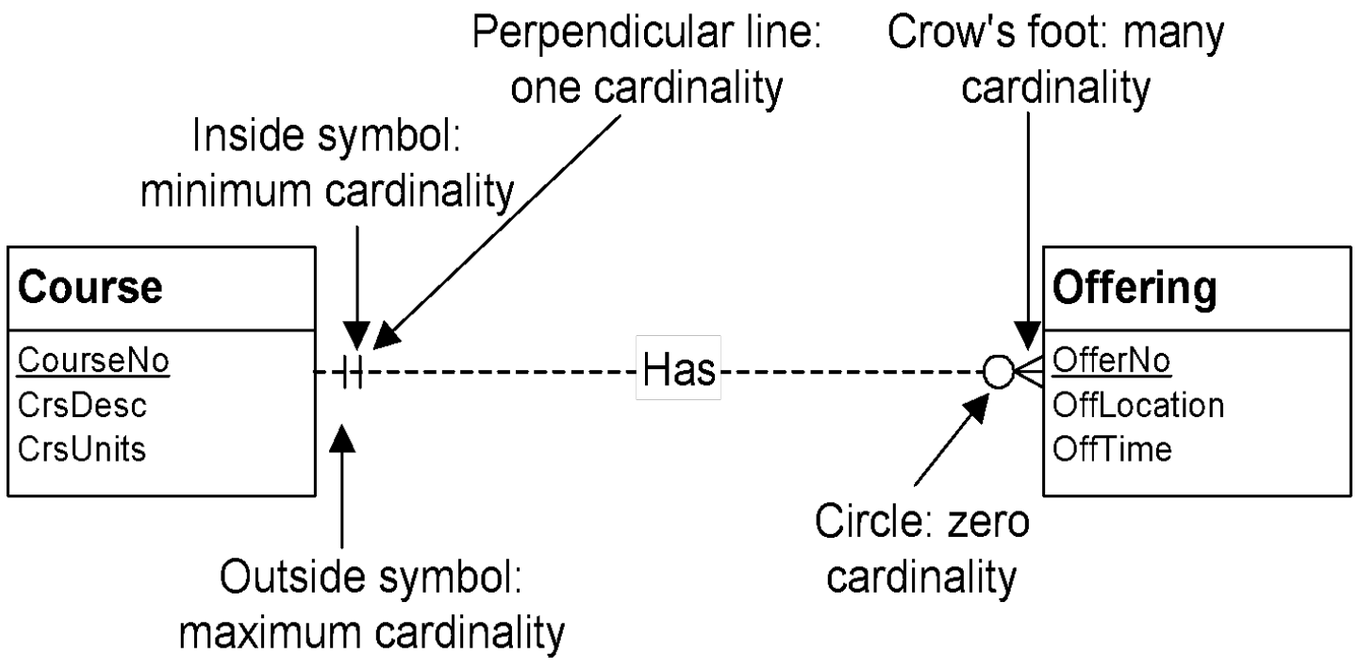
- Data Requirements 검토
- Conceptual Data Modeling (ERD)
- Logical Database Design (Tables)
- Distributed Database Design (Distributed Schema)
- Physical Database Design
- Internal Schema, Populated DB

Basic ERD Notation

Cardinality

constraint of
the number of objects
that participate in a relationship





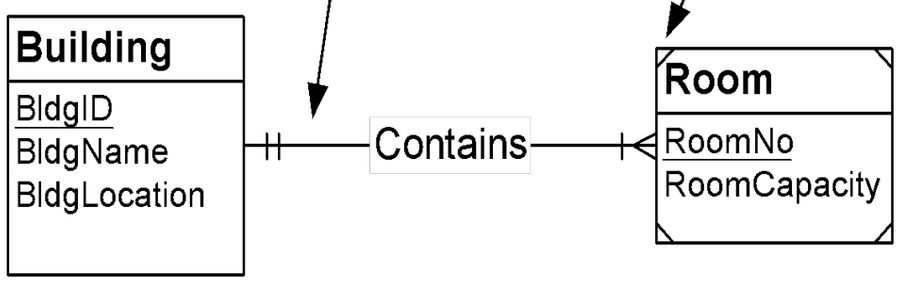
Important Cardinalities

- **Mandatory: Min(card) >= 1**
- **Optional: Min(card) = 0**
- **Functional or Single-valued: Min(card = 1)**
- **1-M: Max(card) = 1 // Max(card) > 1**
- **M-N: Max(card) > 1 in both**
- **1-1: Max(card) = 1 in both**

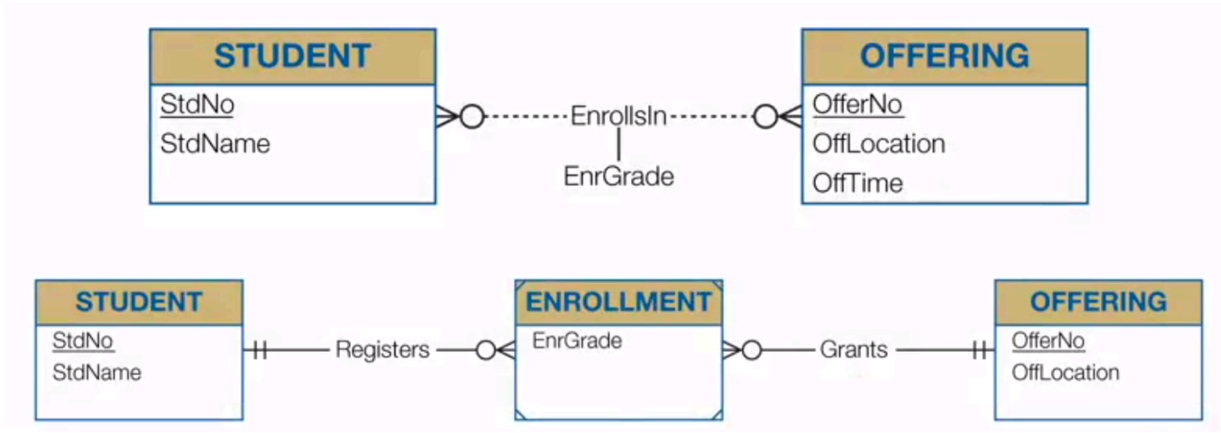
Relationship Variations

Identification Dependency Symbols:

- Solid relationship line for identifying relationships
- Diagonal lines in the corners denote weak entities.

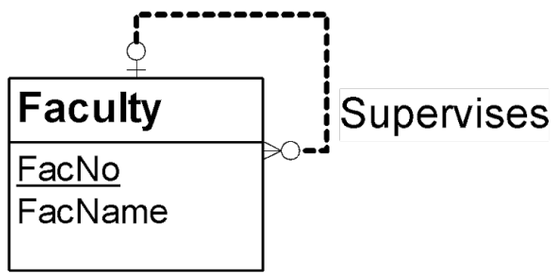


Identification Dependency

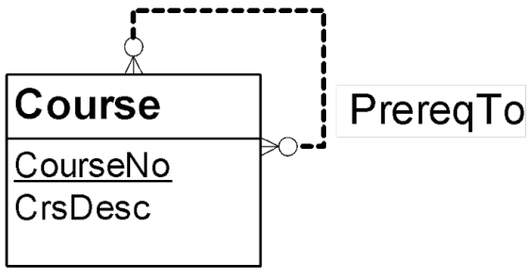


M-N Equivalence Rule

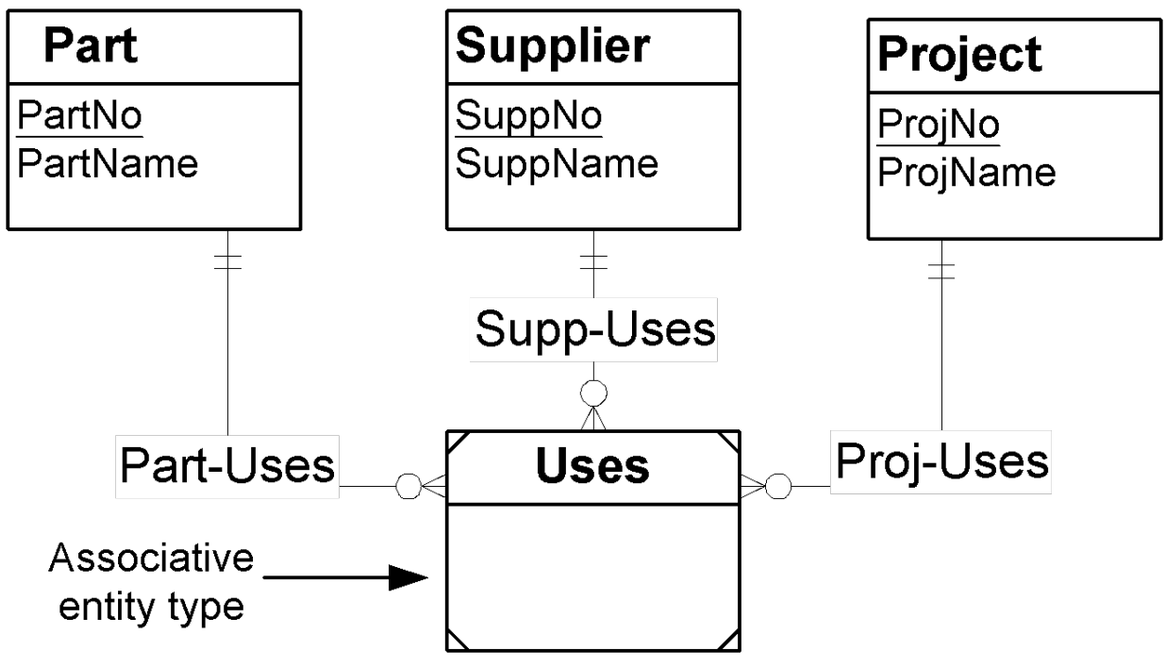
a) manager -subordinate



b) course prerequisites



Self-Referencing



M-Ways Relationship