



Business School
UNIVERSITY OF COLORADO DENVER

Information Systems Program

Module 3

Data Warehouse Design Practices and Methodologies

Lesson 5: Schema Integration Process



Lesson Objectives

- Explain steps in the schema integration process
- Apply merge transformation to simple data sources
- Apply flatten transformation to simple data sources

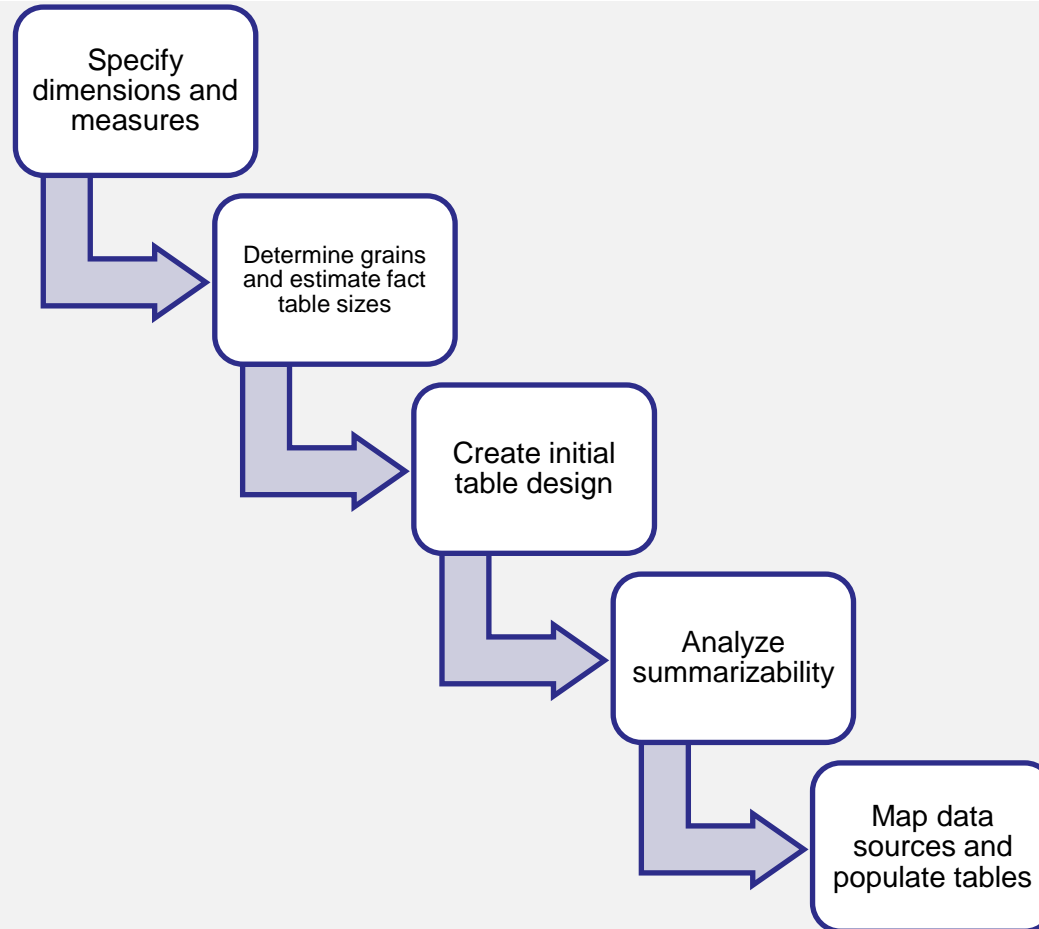


Overview of Schema Integration

- Combine small number of data sources
- Business intelligence requirements
 - Decisions
 - Measures
 - Wish lists
- Data sources as raw materials to satisfy business intelligence requirements
- Apply schema integration process as part of a methodology for many data sources



Schema Integration Steps



Design Transformations

- Used in third and fourth step of schema integration methodology
- Merge and flatten transformations to simplify fact table design
- History transformations for historical integrity
- Summarizability patterns for dimension and dimension-fact problems

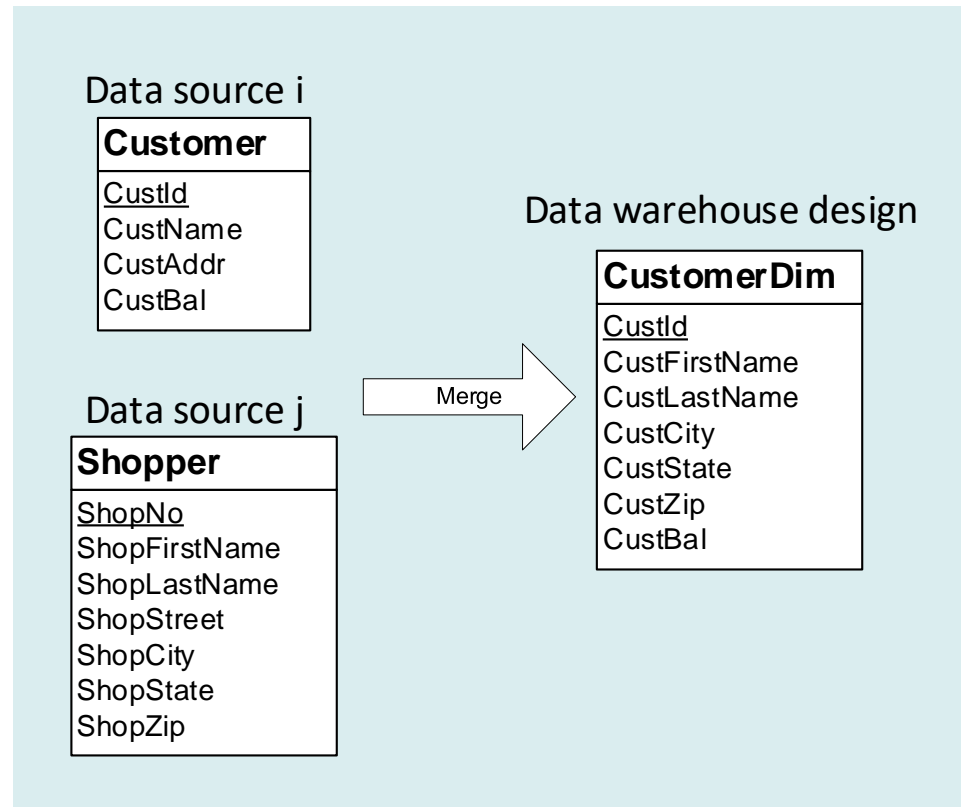


Merge Transformation

- Design transformation to integrate source schemas
- Applies to source tables representing dimensions and measures
- One source table from each data source combines into a single data warehouse table
- Sometimes combine multiple tables from the same data source



Merge Transformation for a Dimension Table

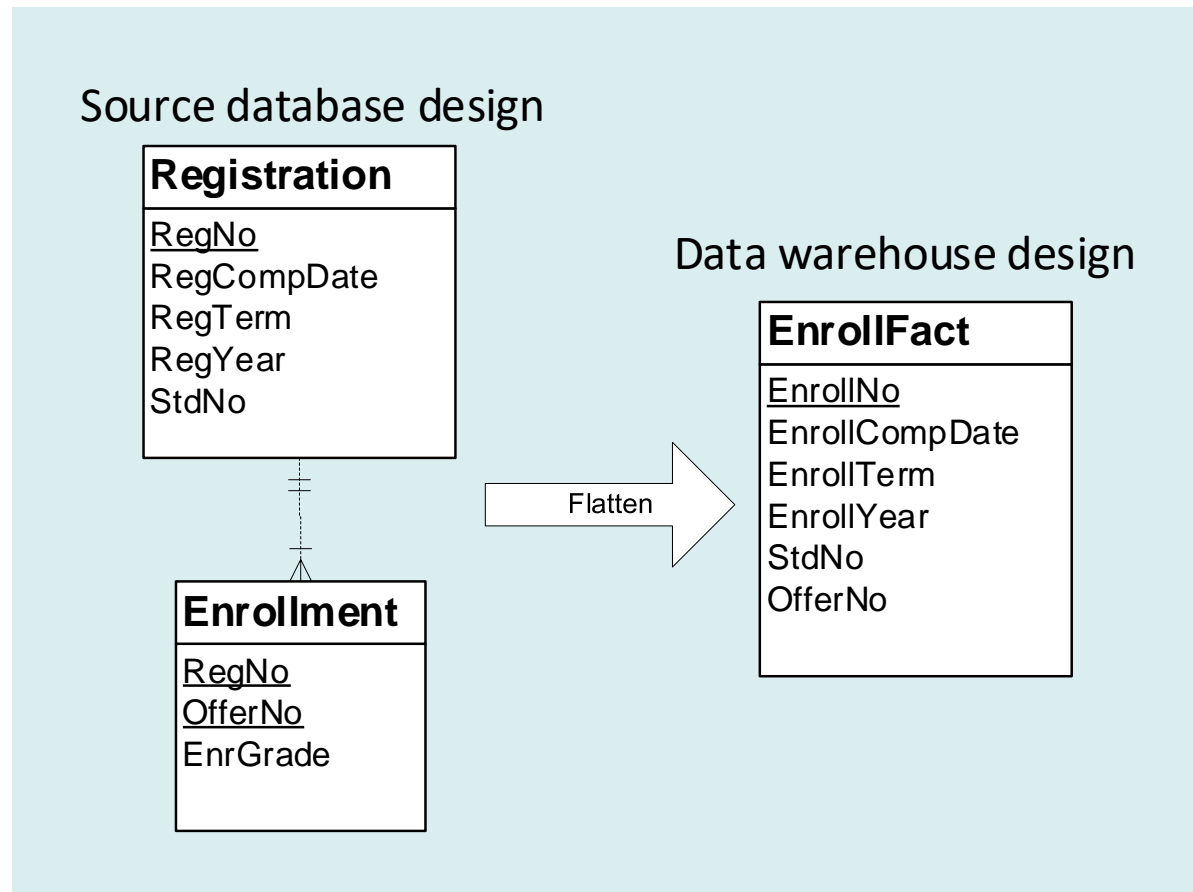


Flatten Transformation

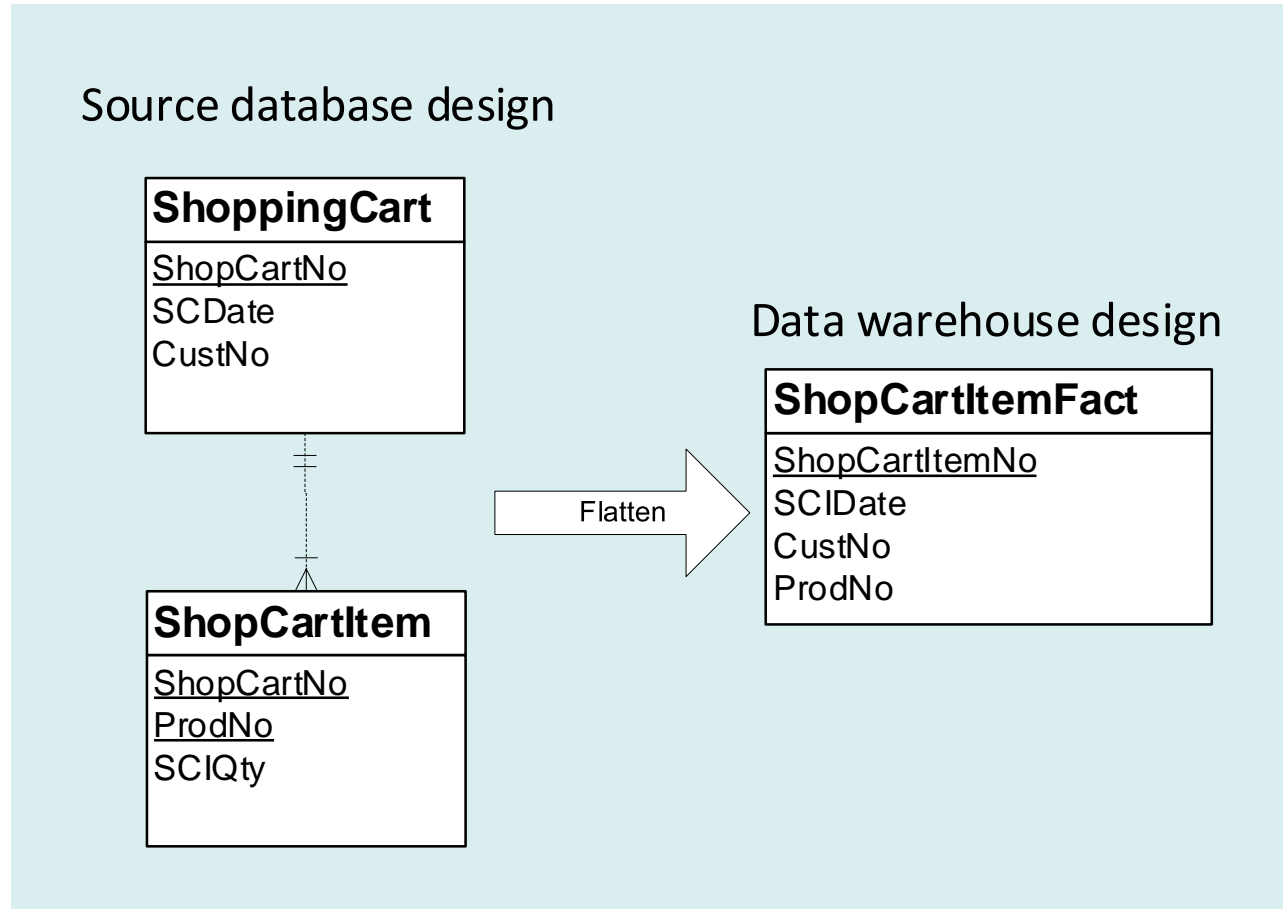
- Design transformation to simplify fact table design
- Two level table design for business transactions
 - Parent entity type with transaction heading
 - Child entity type with item details
- Combine two level design into a single fact table



Flatten Transformation Example I



Flatten Transformation Example II



Flatten Applicability

- Close time proximity for heading and details of a business transaction
- Mostly related items and measures tracked for heading and details of a business transaction
- Ability to capture the heading and details of a business transaction into a data warehouse without undue wait for completion of details



Summary

- Process provides a sequence of steps applied to a pair of data sources
- Emphasis on integration and simplification using transformations
- Merge transformation to combine dimensions and measures
- Flatten transformation to reduce detail for fact tables
- Apply data integration process on practice case and assignment

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