

Introduction to Data Design

Ted Roche

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Who is Ted Roche?

- Independent Consultant
 - Ted Roche & Associates, LLC
 - Software development
 - Mentoring, training
- Author
 - Hacker's Guide, Essential SourceSafe
 - FoxTalk 1.0 and 2.0

Data Design

“Can a good application be created from a bad data design?”

- Terminology
- Normalization
- Naming Conventions
- Real-World Design
- Bonus: RI and the dimension of time

Terminology

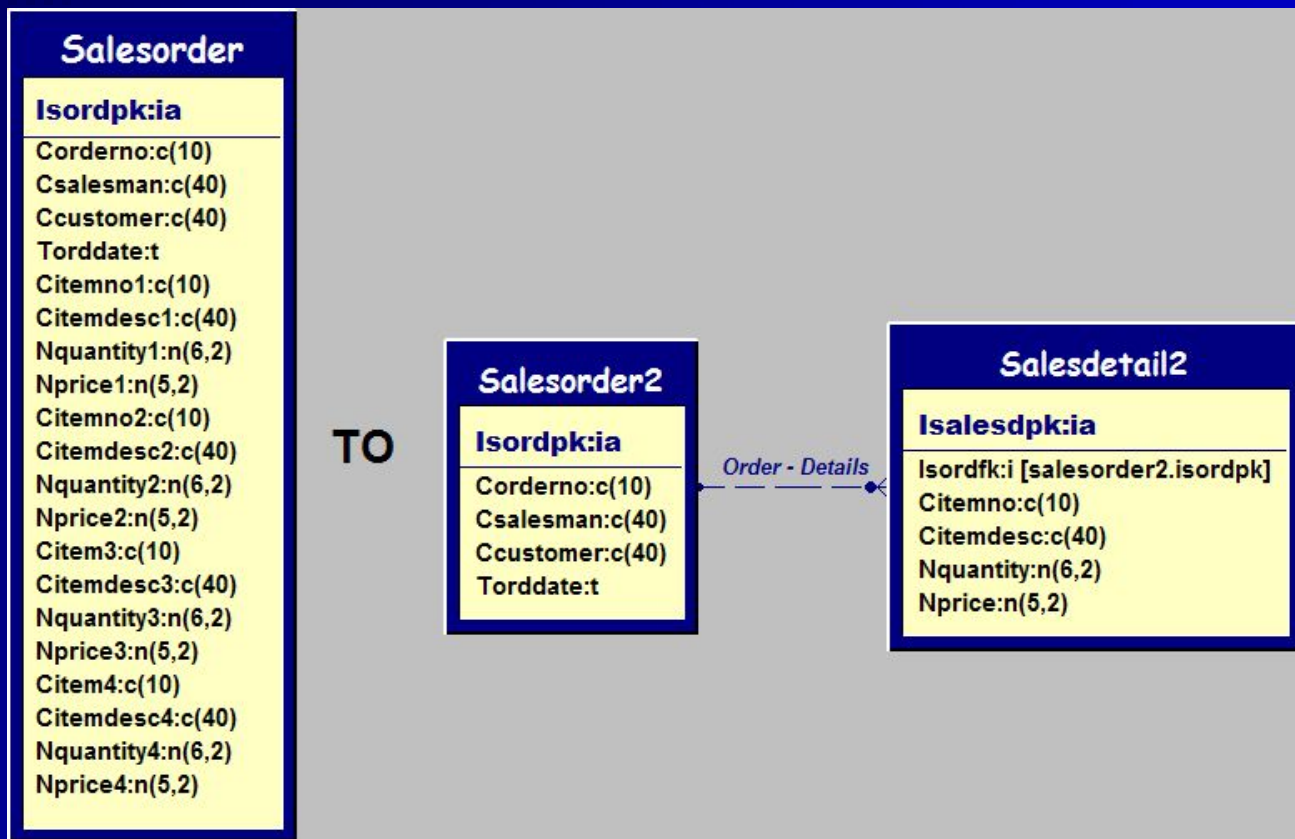
- Field / Column
- Record / Row
- Key: Primary, Candidate, Foreign
- Index
- Relation
- Cardinality
- Relational Integrity
- Logical vs. Physical Design

Normalization

- First
 - Second
 - Third
 - Fourth (“Boyce-Codd”)
- “The Key, the whole Key, and
nothing but the Key” -- C.J. Date

First Normal Form (1NF)

Remove repeating groups



Second Normal Form (2NF)

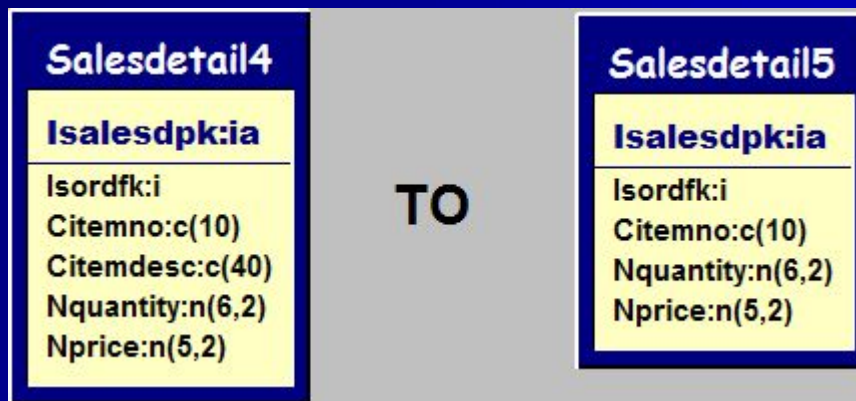
Fields depend on all parts of key(s)



The customer belongs to the order, not the order detail.

Third Normal Form (3NF)

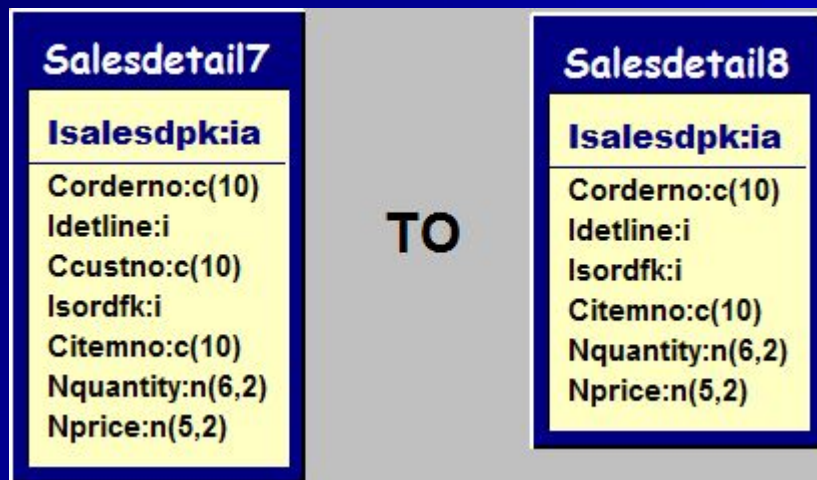
Fields not dependent on other fields



The item description depends on the item number, not on anything specific to the order detail.

Boyce-Codd Normal Form (BCNF)

*Fields depend
 on all parts of
 candidate keys
 as well as
 primary keys*



The order number and detail line number combine to form a “natural” primary key. As we say in 2NF, the customer depends on the order, but not on the detail line.

Naming Conventions

- Any standard better than no standard – write it down!
 - single character datatype
 - Keys end in “PK” or “FK”
 - Keys have table name
 - 10 characters
 - NO plurals (or tables?)
 - consistency – Num, No, Nr

Real-World Design

- Contacts: phone, addresses
 - FoxTalk KitBox, December 2002
 - *"Addressing, the Issues"*
- Organizations, FT KB "Let'er Rip"
- Document structures
- Relation Integrity (RI)
- The Dimension of Time

Summary

- Design up-front saves effort
- Normalization critical to success
- Naming conventions ease coding
- Data design problems are hard; consider them carefully



DevEssentials Web Update

www.develements.com

This session will not have web updates.

Thank you!

Please remember to fill out
your evaluation.