

Data Modeling through Workbench

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“Learning is fun!”



Topics

- What is and Why Data Modeling?
- Steps of Data Modeling
- Relationship
- Normalization
- Data modeling tools

What is and Why Data Modeling?

What is Data Modeling?

- Act of exploring data-oriented structures and their relationship
- Something similar to class modeling in OO design

Why Data Modeling?

- Abstraction
 - > A well abstracted data model will be economical and flexible to maintain and enhance since it will utilize few symbols to represent a large body of design.
- Transparency
 - > A good data model enables its designer to perceive truthfulness of design by presenting an understandable picture of inherently complex ideas.
- Effectiveness
 - > An effective data model does the job accurately, reliably, and economically

Steps for Data Modeling

Steps for Data Modeling

- Identify entity types
- Identify attributes
- Apply naming conventions
- Identify relationships
- Assign keys
- Normalize

These steps are iterative!



Relationship

Types of Relationship

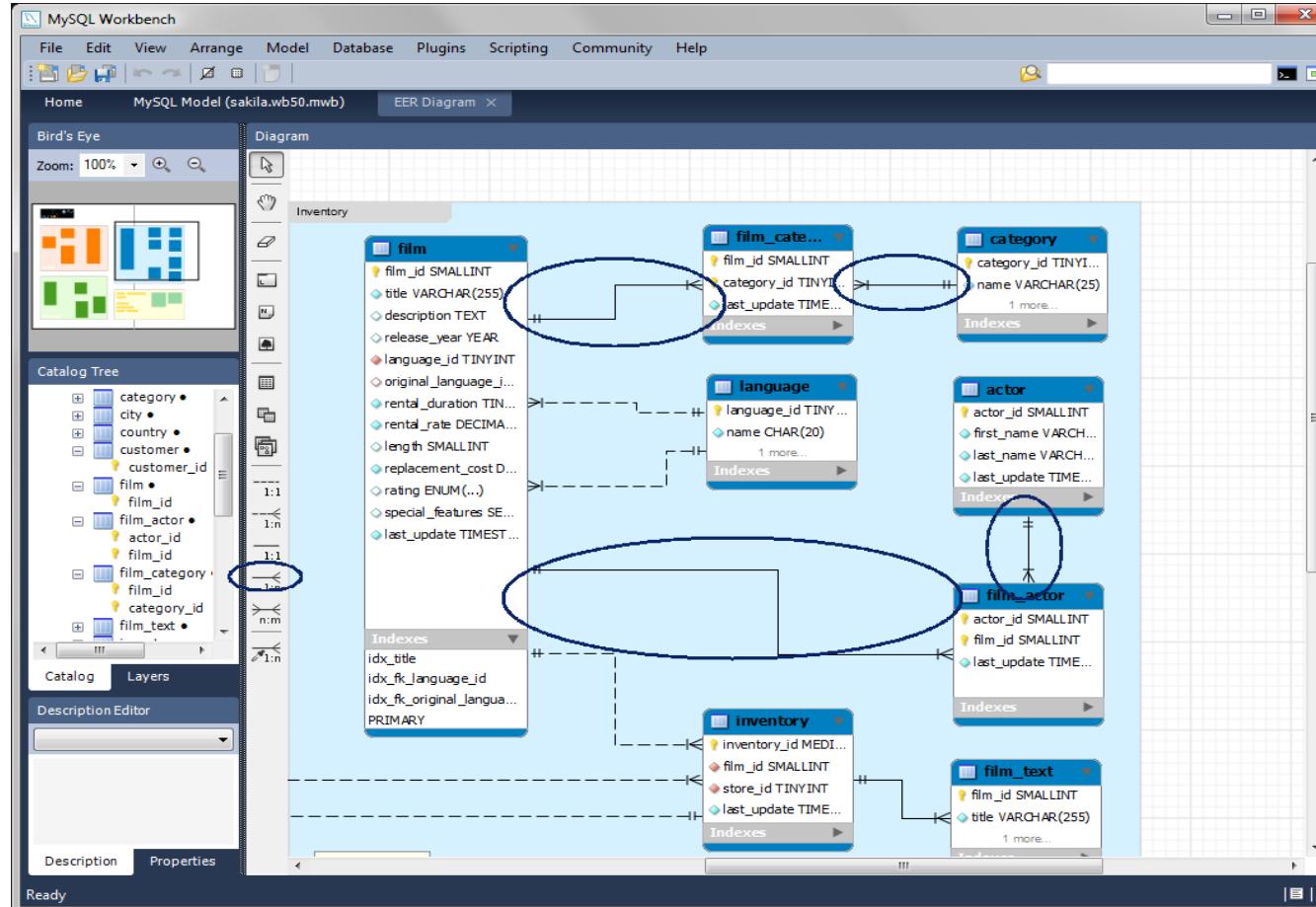
- 1:1 Identifying relationship
- 1:1 Non-identifying relationship
- 1:n Identifying relationship
- 1:n Non-identifying relationship
- n:m Identifying relationship

Identifying vs Non-Identifying Relationship

- Identifying relationship - Child table cannot be uniquely identified without the parent
 - > A join-table (intersection table) used to resolve a many-to-many relationship where the intersecting table's Primary Key is a composite of the left and right (parents) table's Primary Keys.
- Non-identifying relationship - Child table can be identified independently of the parent

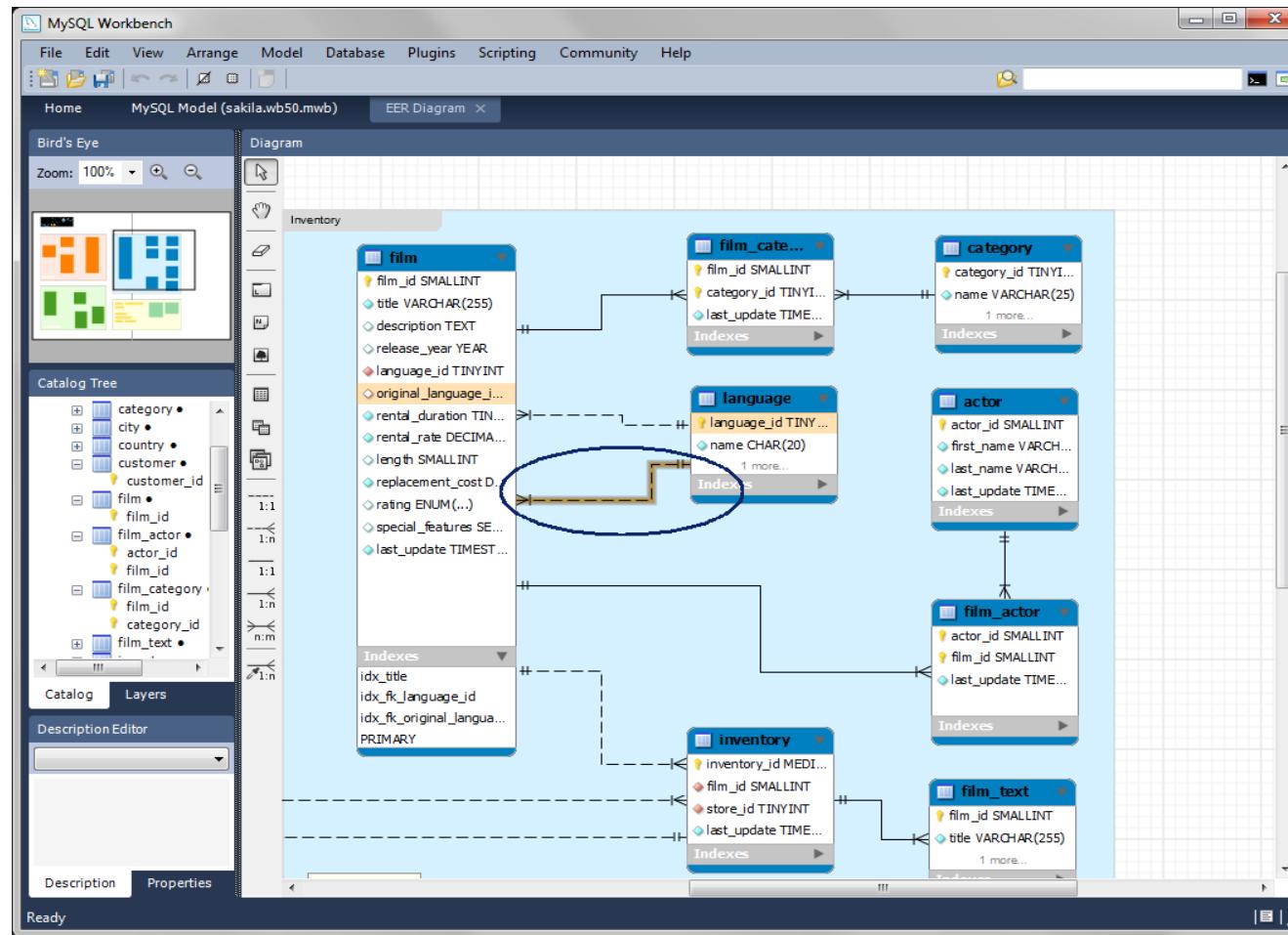
1:n Identifying Relationship

- film and film-category have 1:n identifying relationship



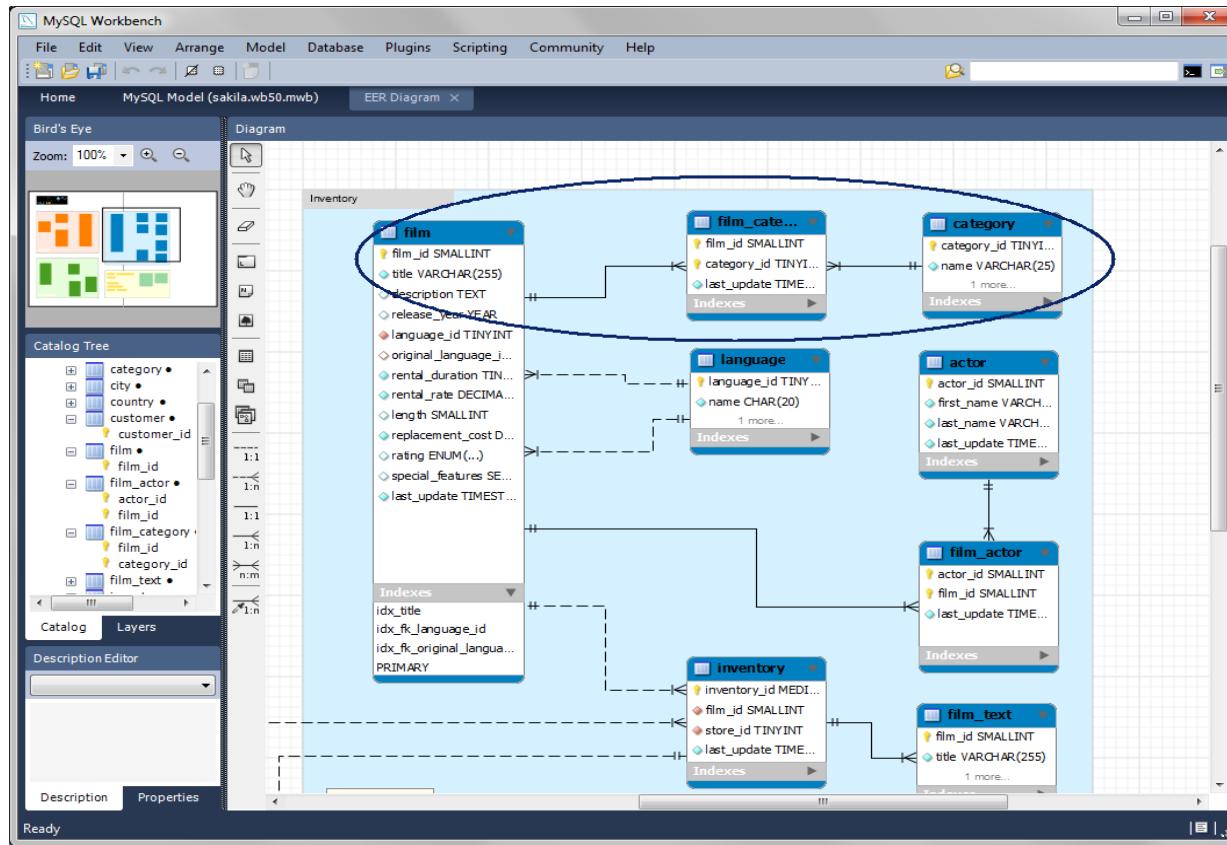
1:n Non-identifying Relationship

language and film have 1:n non-identifying relationship



Many-To-Many Relationship

- Many-to-Many relationship via two identifying relationship through join table



Normalization

What is Normalization?

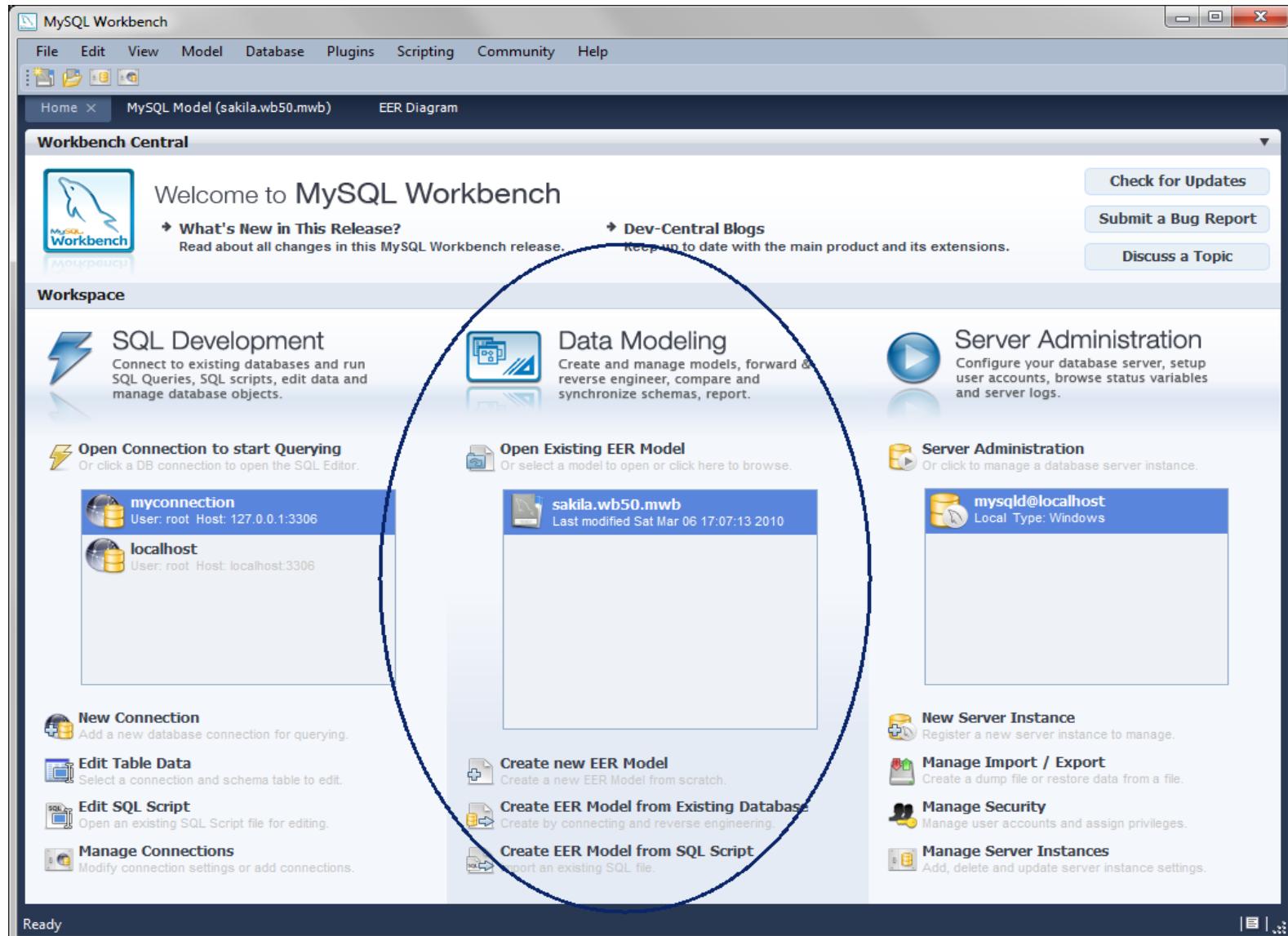
- Is an effort of reducing data redundancy
- Information is stored in one place and one place only
- Reduce the possibility of inconsistent data
- Could result in performance degradation

Data Modeling Tools

Data Modeling Tools

- There are many
 - > http://www.databaseanswers.org/modelling_tools.htm
- MySQL Workbench
 - > Create and manage models
 - > Forward and reverse engineer
 - > Compare and synchronize schemas
 - > Report

Data Modeling in MySQL Workbench



Thank you!

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