Entity Attributes, and Primary Keys

Bachelor of Information Systems

INTRODUCTION TO
DATABASE AND INFORMATION SYSTEM

CC BY SA

Learning Objective(s)

This material should address the following question(s).

- What are entity attributes?
- How to uniquely identify objects?

An entity and its attributes

An entity is **described** through its attributes or members.

An entity may have one or more attributes.

Case Study

Inside the campus library.

Case Study

Inside the campus library.

- A library has a multitude copies of books, articles, etc.
  - New collections come periodically.
- Anyone may come and enjoy the collections.
  - Only library members can lend books for period of time.

What attributes are needed to describe a book ?

Case Study

Inside the campus library.

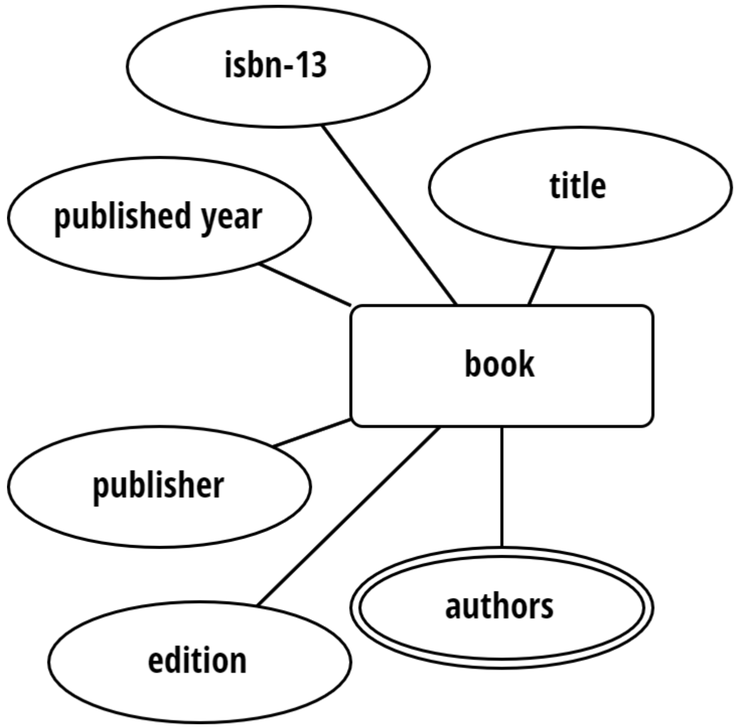
- Its title;
- One or more authors;
- Its publisher;
- The published year.
- Its edition;
- Its ISBN;
- etc.

What attributes are needed to describe a book ?

Case Study

Inside the campus library.

- Its title;
- One or more authors;
- Its publisher;
- The published year.
- Its edition;
- Its ISBN;
- etc.



How to uniquely identify objects?

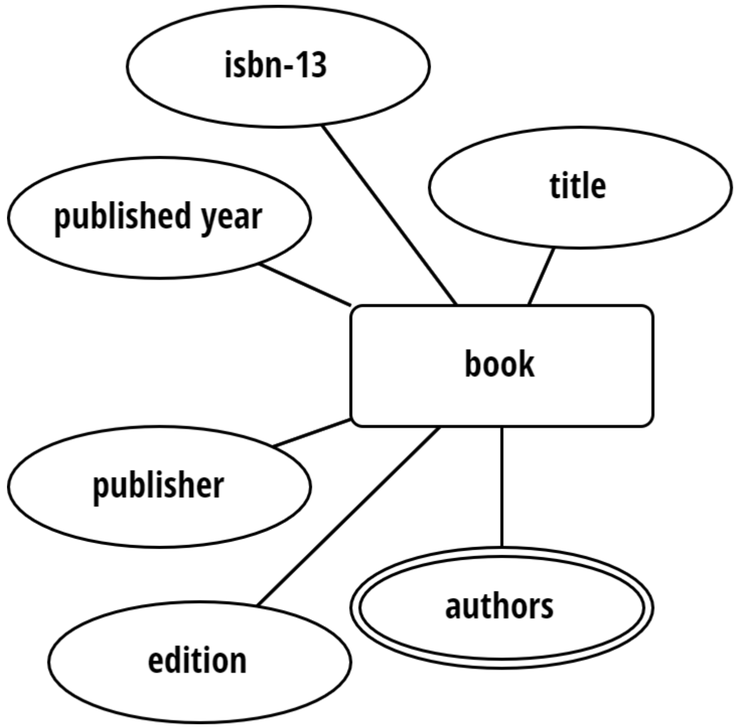
How can we **differ** a book from the others?

What attribute(s) can make a book **unique** from the rest?

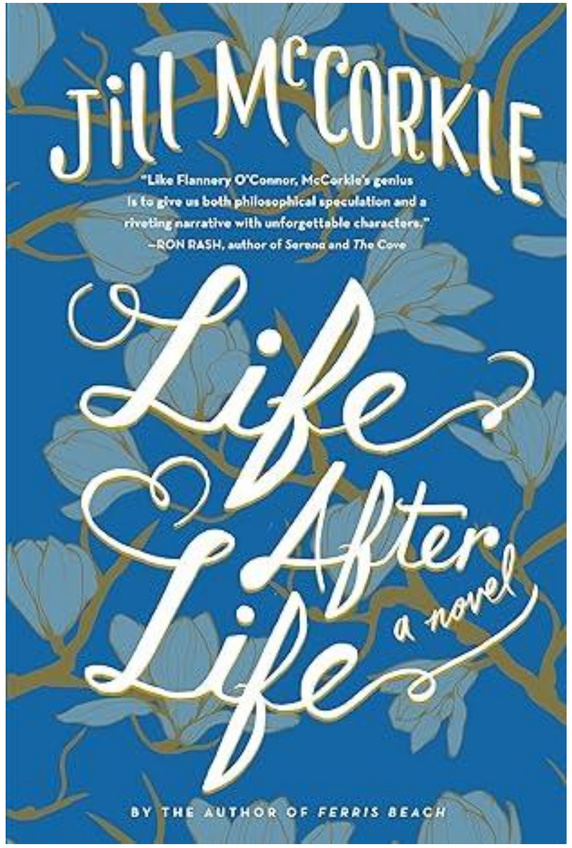
Case Study

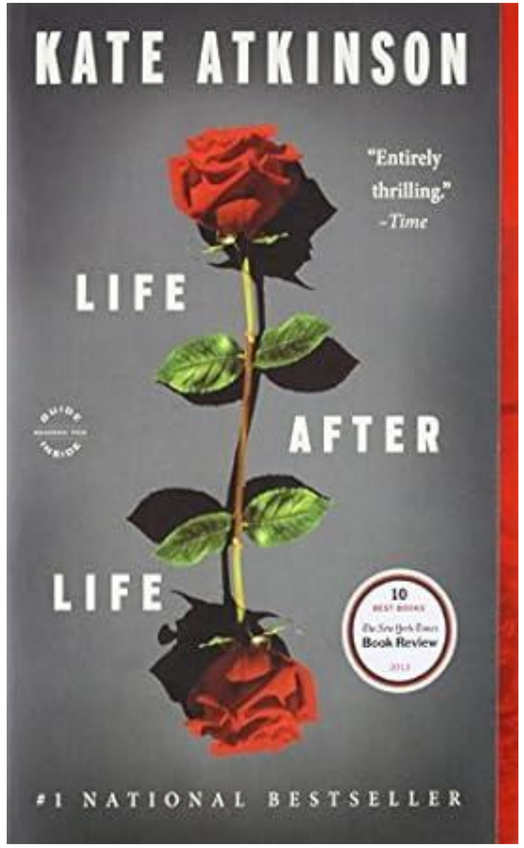
Inside the campus library.

- Its title;
- One or more authors;
- Its publisher;
- The published year.
- Its edition;
- Its ISBN;
- etc.



Written by
Jill McCorkle





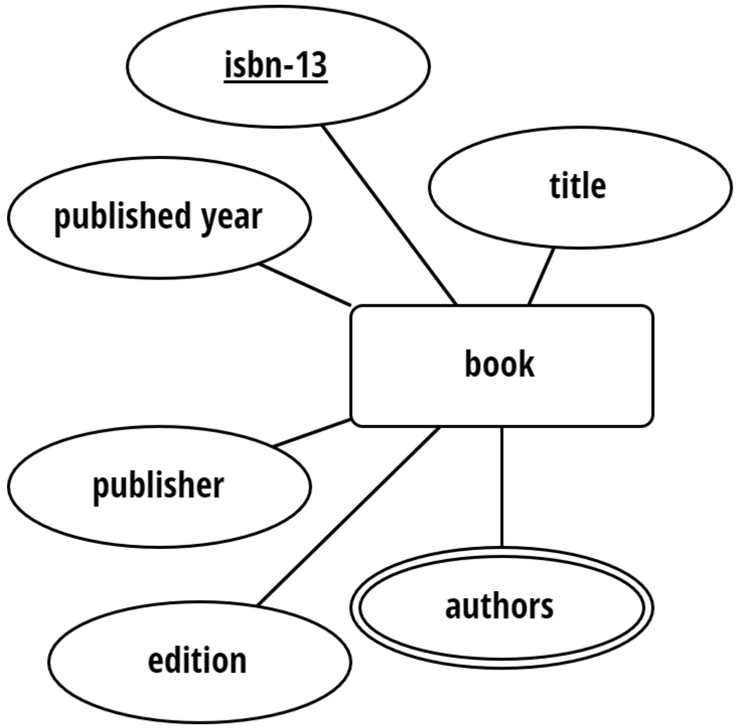
Written by
Kate Atkinson

Case Study

Inside the campus library.

- Its title;
- One or more authors;
- Its publisher;
- The published year.
- Its edition;
- Its **ISBN**;
- etc.

A natural key attribute,
acting as **primary key**.



Primary key

It is **one** or **a combination of attributes** (composite) used to uniquely identify an object from the rest.

What if there is no key attribute?

When there is no natural key available, we may introduce a **pseudo/synthetic/surrogate key** as its primary key.

Case Study

Transaction at the cashier.

Case Study

Transaction at the cashier.

- The date?
- The items in the cart?
- The money?
- The cashier her/himself?
- The customer name?

How to describe a transaction

Case Study

Transaction at the cashier.

- The date?
- The items in the cart?
- The money?
- The cashier her/himself?
- The customer name?

In the case like this, we may introduce a surrogate key, transaction ID.

Conclusion

- One or more attributes describe an entity.
- A key is used to uniquely identify objects.
- A key may consists of one or more collaborating attributes.
- A surrogate key can be introduce when natural key is not available.

References

- R, Elmasri, et. al., Fundamentals of Database Systems.
- A. Silberschatz, et. al., Database System Concepts.
- R. K. Rainer, et. al., Introduction to Information Systems.
- G. M. Marakas et. al., Introduction to Information Systems: Essentials for The e-Business Enterprise.

Course

Mario E. S. Simaremare

@simaremare

Lecturer

Samuel I. G. Situmeang

@exemuel