Chapter 5
Business Modelling
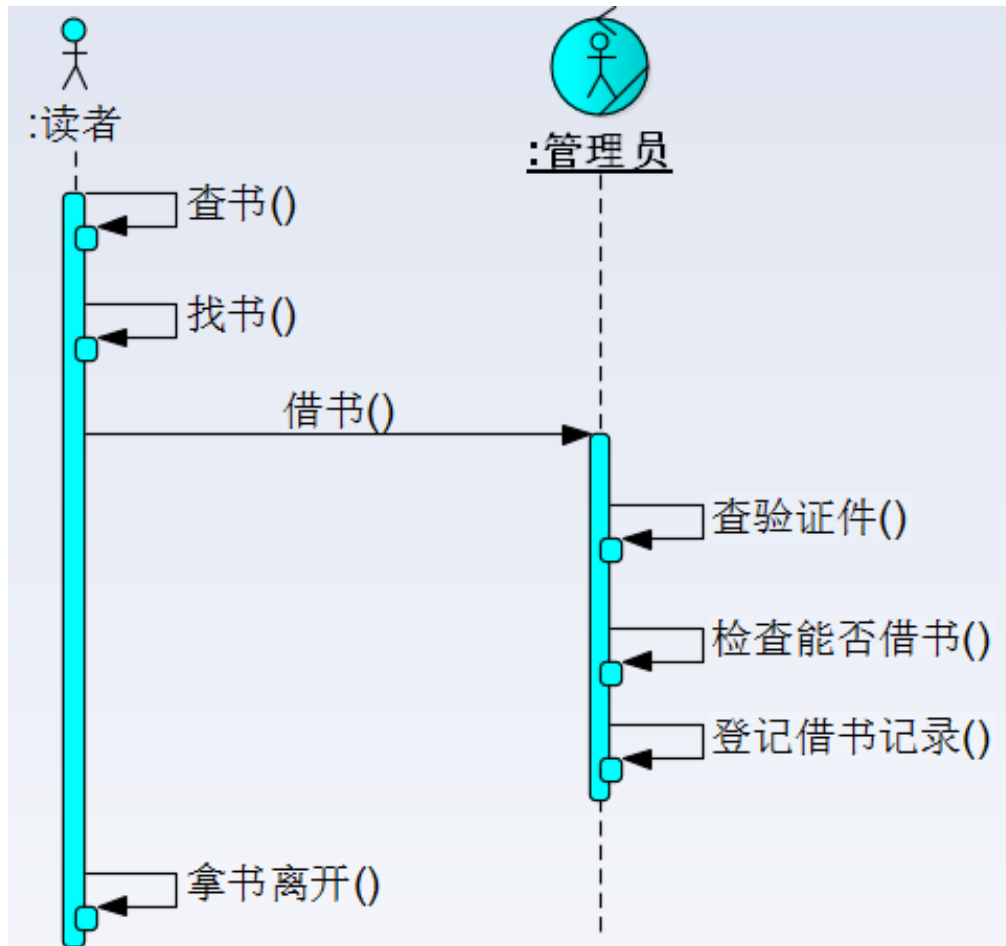
Topics covered

- A real world example

- Why business modelling?

- What is business modelling?

- How to do business modelling with UML?

- The result of business modelling

Raw material of example

- 一个UUA 大学，采用传统的图书馆管理[1]

- Three steps for software developer
  - coding
  - read UML model
  - build UML model

Raw material of example

- 没有软件的现状
  - 读者在卡片盒中查卡片确定书的位置
  - 管理员人工判断证件是否合法
  - 管理员手工查看读者借书记录，判断是否能借书
  - 管理员手工登记借书记录
  - ……
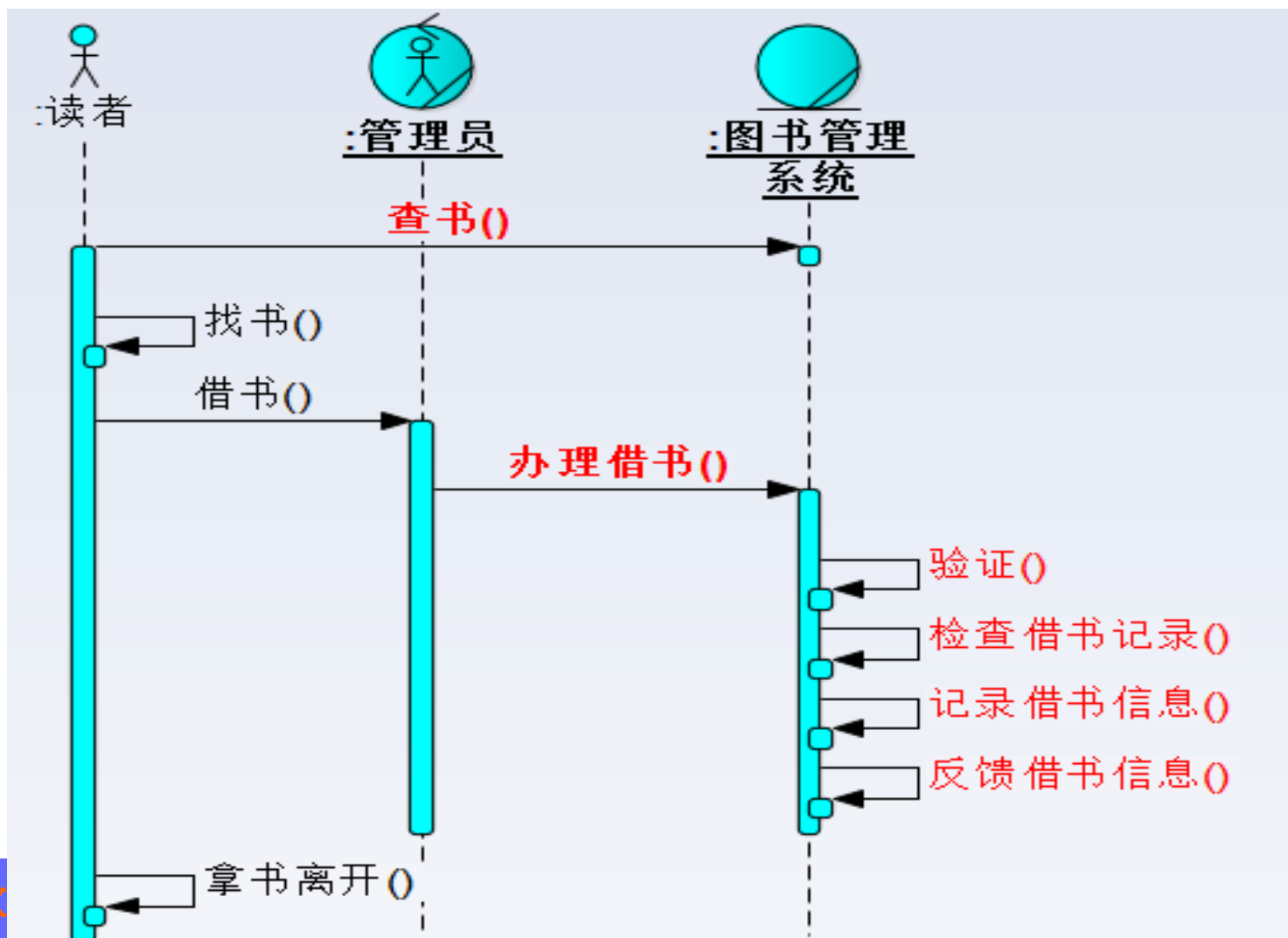
Raw material of example

- 没有软件的缺点
  - 读者体验差
    - 查书、借书时间长
    - 管理员容易判读错误
  - 管理员工作量大，办理借书时间长
    - 人工验证
    - 人工查借书记录
    - 人工判断能否借书
  - 管理员差错率高
  - 图书馆保存纸质借书记录等成本大，风险高
  - ……

Raw material of example

- 老大决定开发 "图书管理系统"
  - 解决现状中的缺点，实现愿景
    - 提高…….
    - 降低……
    - …….

Raw material of example

- 软件：图书馆管理系统[1]

Raw material of example

- 图书馆管理系统 实现了老大的愿景（vision)
  - 读者查书 基本上由系统完成
  - 管理员的 查验证件、检查能否借书、登记借书等由系统完成，（逻辑思维由系统完成）
  - 省去了纸质文档
  - ……..

Raw material of example

- 开发 "图书管理系统"，如何开始？
    1. 业务建模
    2. 需求
    3. 分析
    4. 设计和实现
    5. 回到 1. 不断迭代，直至实现完整的系统

Why do Business Modelling?

- examine organization to get correct requirements[1]
  - requirements is very important to reach a successful software[2]
    - **do the right thing**
    - 需求的重要性.docx
  - with business model, correct requirements comes out directly[3].
    - similar to examine body before diagnosis[4]

Why Business Modelling?

- a key skill for developing software and anything else[1].
  - much more difficult than coding
    - EQ , IQ, SQ…..

Why Business Modelling?

- 对编码而言，智商很重要。那么，做业务和需求更需要情商。

    - 业务和需求建模需要和涉众（客户）交流，人与人的交流不可能只是就事论事，一定会有情感的沟通，这种情感如果能和涉众产生共鸣、达成互信，甚至成为朋友、知己，就会让事情本身更容易理解和接受，有助于提高需求的准确性等，确保软件满足涉众的要求。

    - 编码主要与没有情感计算机交流，计算机仅仅理解冷冰冰的0和1的组合。如何把复杂的需求变成无限可能的0、1组合，需要一定的智商。

    - "非诚勿扰"的"IT男"更多的含义是"码农"…..

    - DT时代更强调人的体验，代码也需要与人交流，写好代码同样需要较高的情商。

Why Business Modelling?

- besides for system requirements, BM is widely used in:
  - professional training
  - process optimize or reengineering

what is business modelling?

- The intended organization
  - those that buy or use the software system
  - maybe an unit or a group of people
    - Library of a university
    - fans of QQ, iphone
- determine organization is a challenge job.[1]
  - especially when organization is a group of people[2]

what is business modelling?

- The boss of the organization
  - the representative of the organization
- determine the boss is also a challenge job.[1]
- The wrong boss leads to fail software[2]

what is business modelling?

- The vision
  - Improvements the system provides for the organization from the boss's view[1]
  - The vision is very important
    - the source of the requirements
    - determine priority order of the requirement
    - the system fails if one or two visions are not satisfied.[2]
  - The vision is difficult to figure out

what is business modelling?

- examine organization
  - get current business flow, i.e. without the system
  - according to visions ,find the problems of the current business flow
  - by visions ,figure out business flow with system
  - according to business flow, requirements comes out

How to do business modelling with UML?

- determine organization and the boss
  - Library
  - Head of Library
- figure out the visions
  - decrease Librarian's human efforts and mistakes
  - decrease reader's amount of borrowing time
  - decrease management cost by paper's document

How to do business modelling with UML?

- vision mode UML

uc 愿景

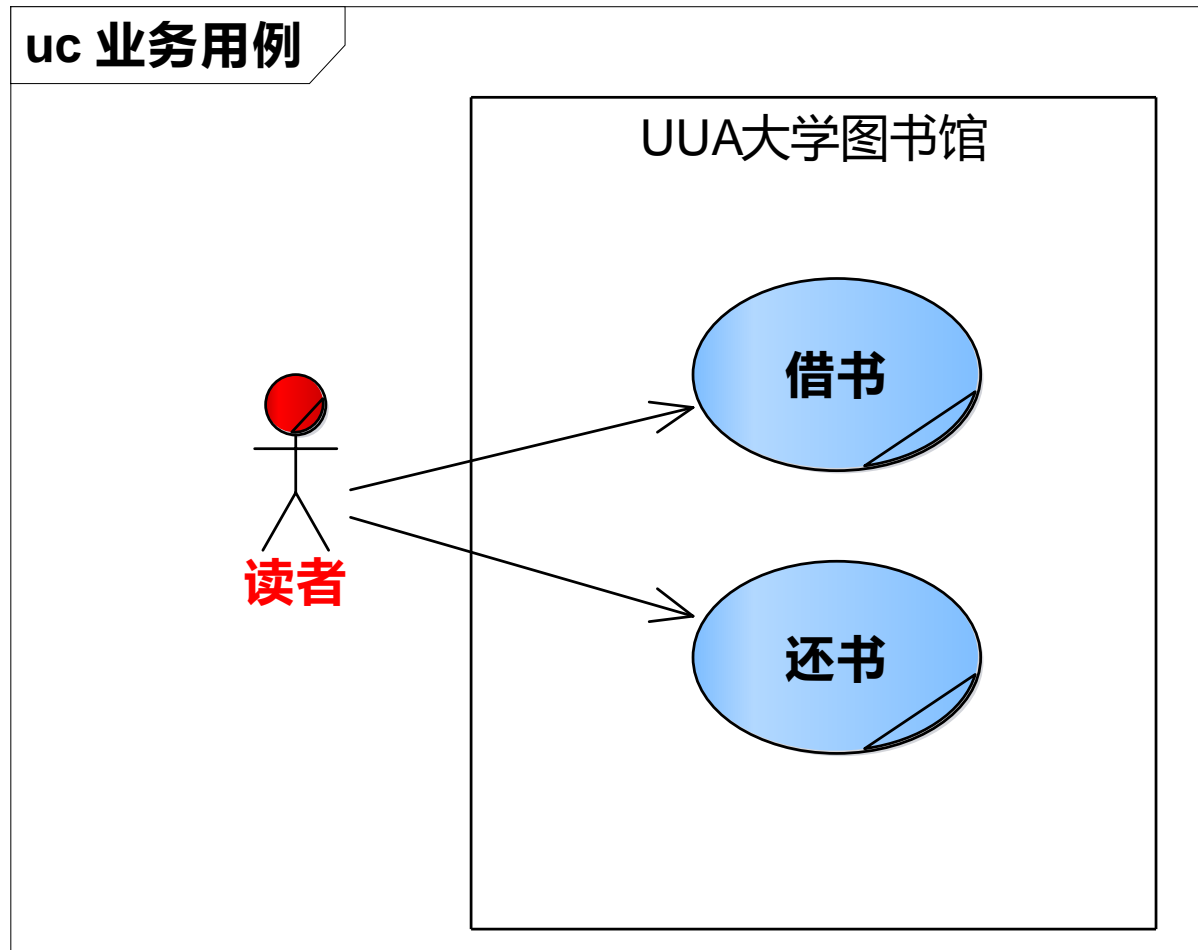系统：UUA大学图书管理系统（LibSys)

老大: 馆长

目标（度量指标）：

*降低管理员工作量和差错

*降低读者借书时间

*降低纸质文档的需求

How to do business modelling with UML?

- examine organization to find problems according to visions
  - identify business actors
    - those who interact with organization and is outside the organization
    - maybe a group of people
    - maybe another organizations
    - for our LibSys
      - reader
      - …….

How to do business modelling with UML?

- business use case model for UUA library
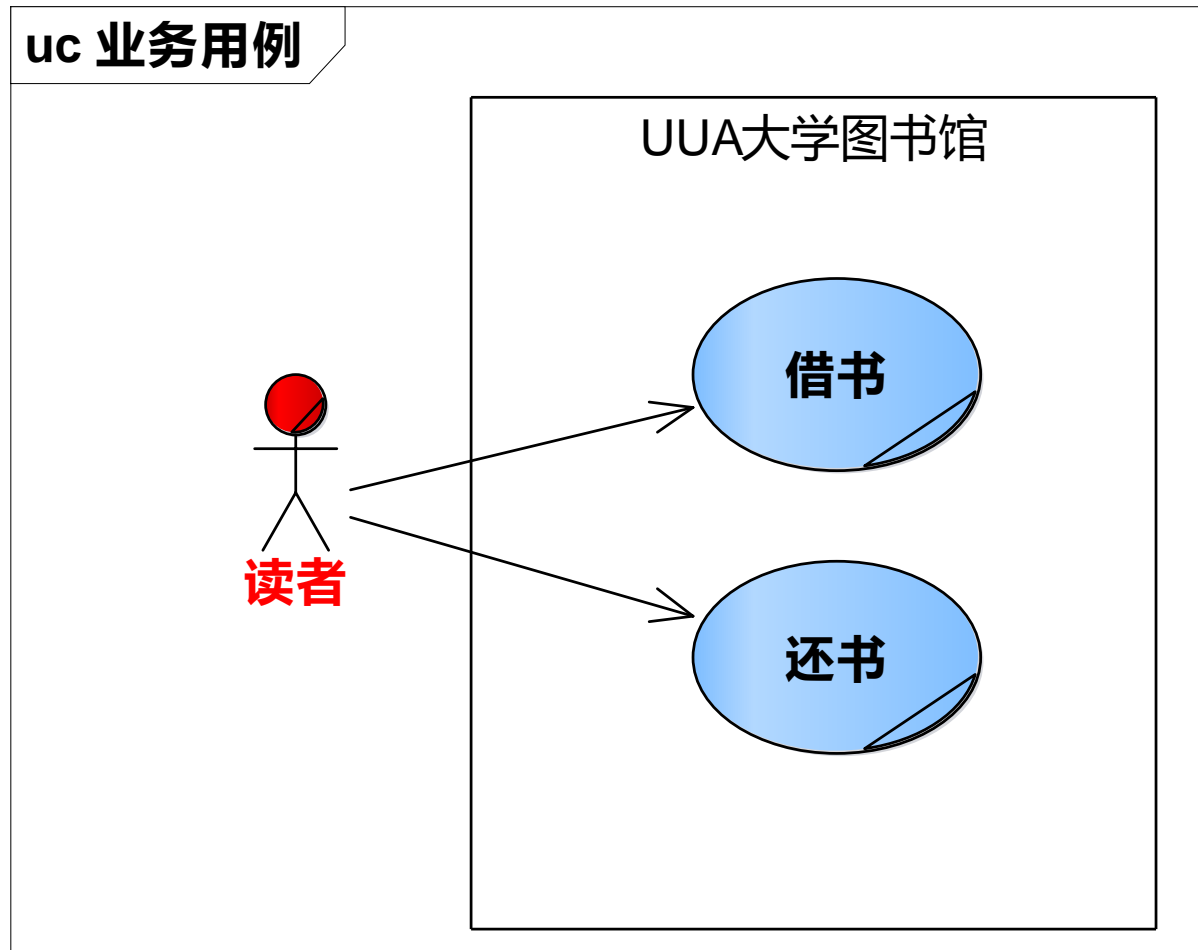
How to do business modelling with UML?

- examine organization to find problems according to visions
  - identify business actor
  - questions
    - business actors for a bank?

How to do business modelling with UML?

- examine organization to find problems according to visions
  - figure out business use cases[1]
    - services offered by organization to business actors
    - purposes of business actors who interact with organizations
    - business use cases are relatively stable[2]
      - business use cases for UUA library
      - questions: business use cases for a bank?
        » not change for several thousands years
    - find business use cases is a bit difficult[3]

How to do business modelling with UML?

- business use case model for UUA library

How to do business modelling with UML?
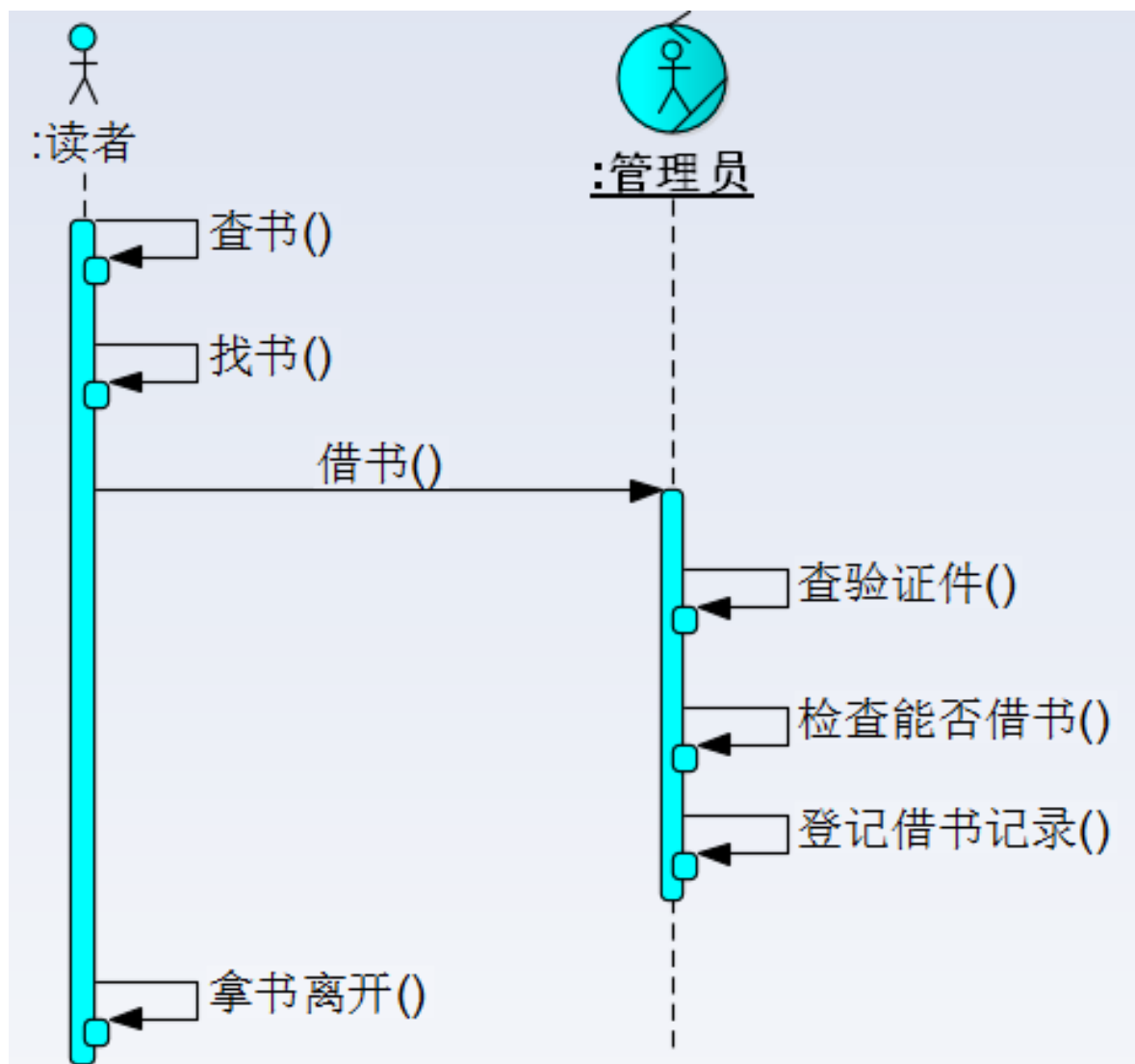
- examine organization to find problems according to visions
  - examine each business use case[1]
    - a set of systems
      - person system
      - intelligent system
    - how do these systems interact each other to realize use case, i.e. business workflow
    - what are the problems of the current workflow, that is to say, without the system, what are the disadvantages?

How to do business modelling with UML?

借书

- workflow is realization of business use case
  - any activity in organization is to realize business use case
- current workflow UML model
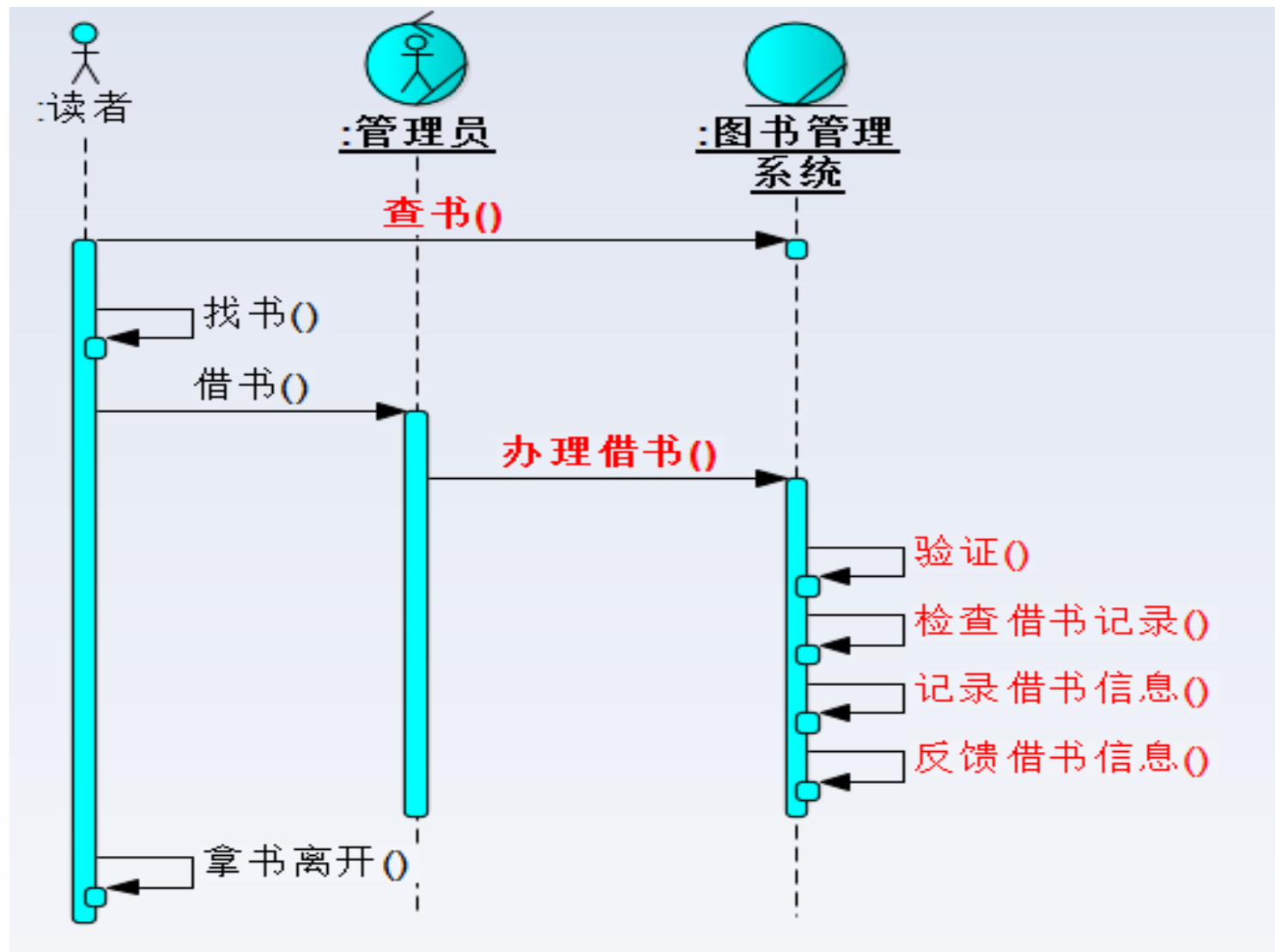 - sequence diagram

How to do business modelling with UML?

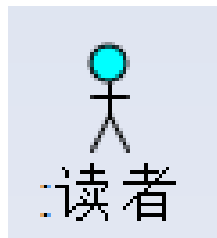# How to do business modelling with UML?

借书

- workflow with LibSys(图书管理系统）
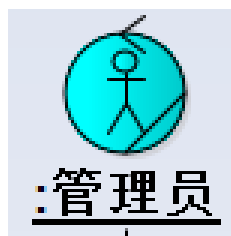 UML model
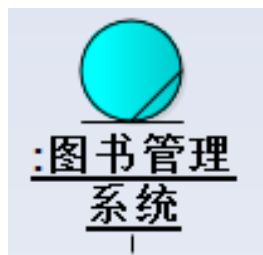 – sequence diagram

How to do business modelling with UML?

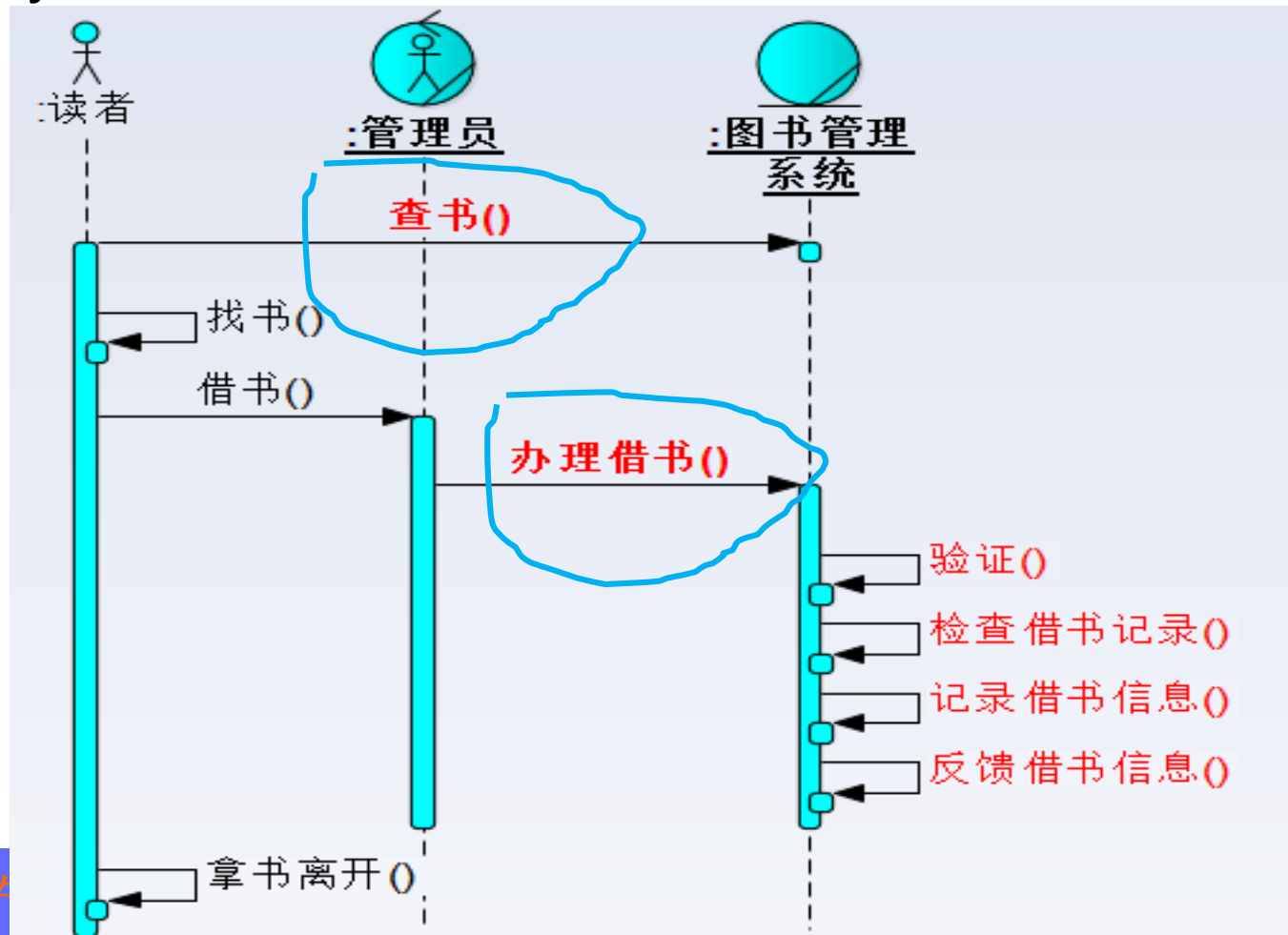# How to do business modelling with UML?

business actor

business worker

business entity

- ## business actor / business worker
  - actor is outside organization
    - group of person or organization
  - worker is inside organization
    - human being

- ## business worker/ business entity
  - both are inside organization
  - worker is human being
  - entity is non-human intelligent system
  - more and more workers is substituted by entities
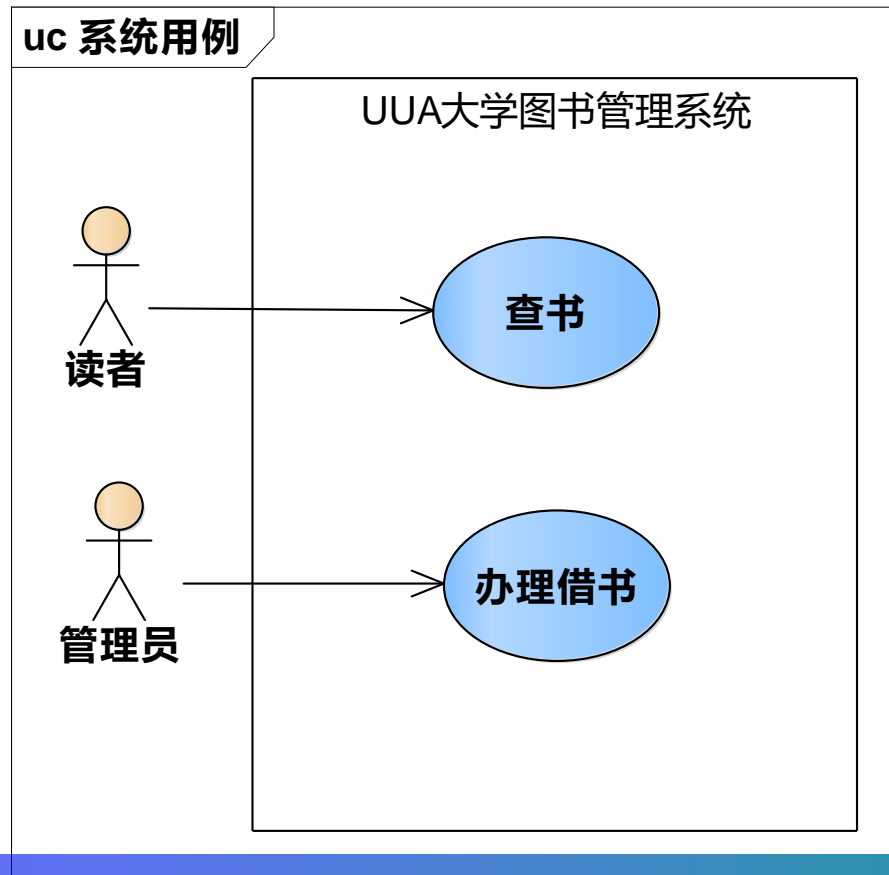
the result of business modelling

- requirements
  - system use cases

the result of business modelling

- requirements
  - system use cases for "借书"业务用例

- ## Business modelling is iterative.
    - first important use case, then …….

Summary

- BM: to deduce the correct requirements
- BM is very critical for successful software
- BM is an important skill
- iteratively
- UML in BM