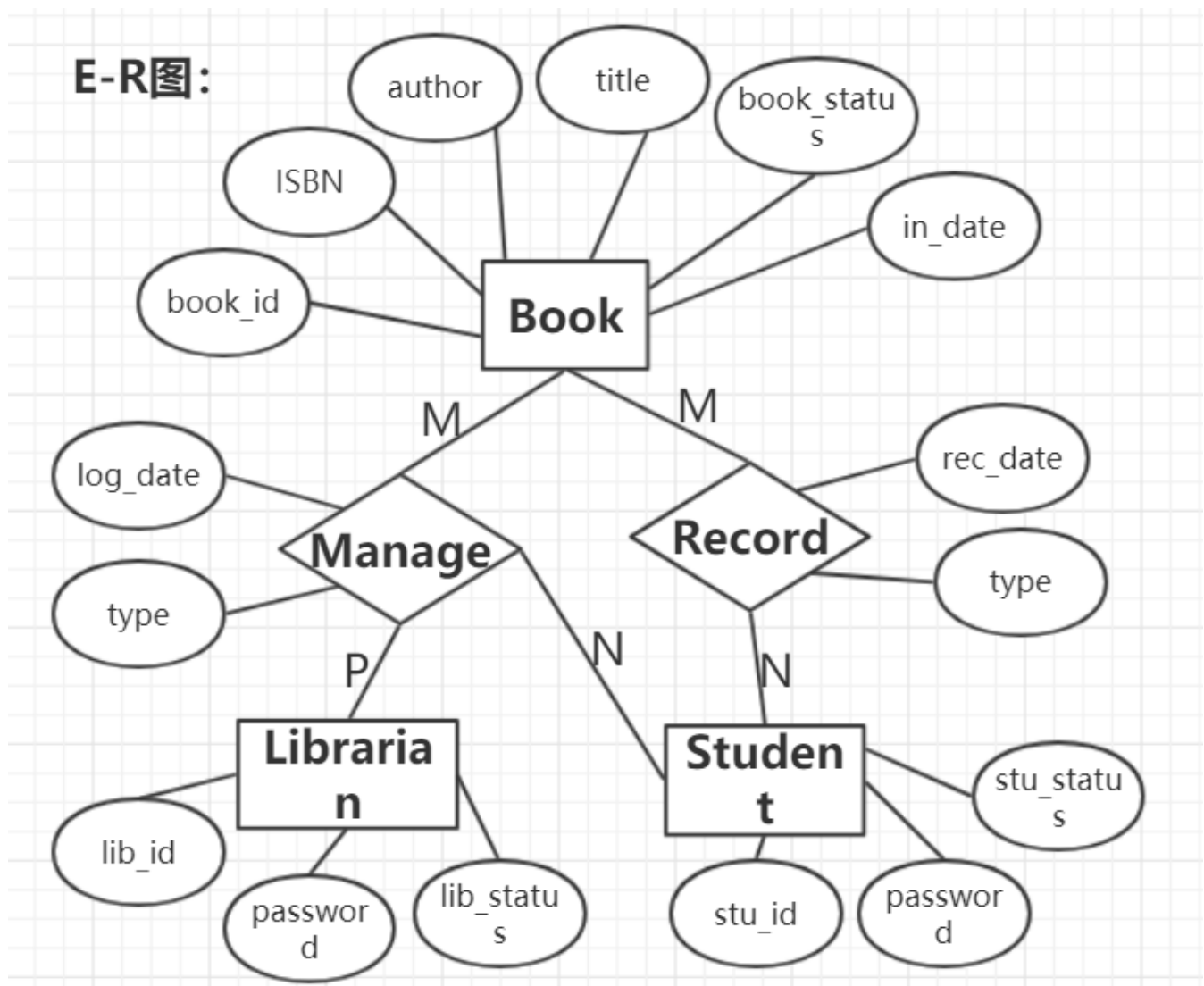


Ass3 实验报告

基本功能需求

1. 添加书 (ISBN,title,author)
2. 删除已有的书 (管理员账号)
3. 添加学生账号 (管理员账号)
4. 查找书
5. 借书 (学生账号)
6. 查找学生账号的借阅历史
7. 查找学生借走还未归还的书
8. 查看已借出书的归还日期
9. 续借 (最多3次)
10. 查看学生账号是否有逾期未还的书
11. 还书 (学生账号)
12. 停用学生账号 (管理员账号)

E-R图



表格设计

表1：用于存储书籍信息（ISBN，书名，作者）

BookInfo (ISBN, title, author)

- 1. ISBN（主码）根据2007年起新版本是长度为13位的数字串
- 2. title,author限制为最大100个字符的字符串

表2：用于存储每本书（书的编号，ISBN，书的状态，剩余续借次数，购入日期）

Book (book_id, ISBN, book_status, exdll, in_date)

- 1. 这里书的标号（主码）没有采取从1开始递增，而是选择了固定长度的字符串，构造方式：“ISBN”+“n”+“三位数字”，“三位数字”为按馆藏副本数递增；
- 2. ISBN为外码
- 3. book_status表示该书目前的状态分别为：

```
const (  
  
    /*Book Status*/  
    OnShelf    int = 301  
    OnLoan     int = 302  
    OnReserve  int = 303  
    NonLoan    int = 305  
  
)
```

其中 OnShelf 为状态量的最小值，NonLoan为状态量最大值是必要的，因为后面的有一些代码用到了这个。

- 4. exddl 是个冗余属性，因为可以根据查询Record中的数据来判断该书已经被续借了几次，但为了方便操作，额外添加了这个属性

表3：用于存储学生账号信息（账号，密码，账号状态，当前借书数量）

Student (stu_id, password, stu_status)

- 1. stu_id（主码）采用固定长度字符串，由常量const StuAcclen int = 10 定义
- 2. password 长度限制为4-16，通过crypto/bcrypt加密生成长度为EnPWLen int = 60的Hash值，存储在数据库中
- 3. stu_status 用于表示账号状态（被停用，续借次数

```
const(  
    /*Student & Librarian Status tag*/  
    InvalidAcc  int = 200  
    InitialState int = 201  
  
)
```

其中InvalidAcc表示停用，其值小于InitialState是有必要的，因为使用了stu_ststus加1表示借书数量加1。

表4：用于存储图书管理员账号

Librarian (lib_id, passwaord, lib_status)

定义与Student一致，只是lib_status只用来表示账号的有效与否。

表5：用于存储学生账号的活动记录

Record (rec_id, stu_id, book_id, type, rec_date)

1. rec_id (主码) ,采取自增
2. type b表示活动类型

```
const(  
    /*Record Type*/  
    Borrow          int = 306  
  
    Reserve         int = 307  
    Return          int = 308  
    CancelReserve   int = 309  
)
```

表6:用于存储图书馆里记录

ManageLog (log_id, lib_id, tar_id, type, log_date, notes)

1. Log_id (主码)，采取自增
2. tar_id可以说book_id,也可以是stu_id
3. Type 表示活动类型

```
const(  
    /*ManageLog Type*/  
    AddBook         int = 311  
    RemoveBook      int = 312  
    AddStu          int = 313  
    RemoveStu       int = 314  
    SuspendStu      int = 315  
    DissuspendStu   int = 316  
)
```

功能实现：

用户类型	功能描述	操作命令	函数实现
administrator (管理账号)	添加图书管理员账号	al [lib_id] [password]	AddLib(lib_id, password string)
	添加学生账户	as [stu_id] [password]	AddStu(stu_id, password string)
	删除图书管理员账号	rl [lib_id]	RemoveLib(lib_id string)
	输出学生账号	rs [stu_id]	RemoveStu(stu_id string)
	修改图书管理员/学生账号密码	cpl [lib_id] cps [stu_id]	ChangePassword(id string, t int)
Librarian (管理图书)	添加书	ab [ISBN] [title] [auther]	AddBook(ISBN, title, auther string)
	删除书	rb [book_id] [notes]	RemoveBook(book_id, notes string)
	查看某名学生借阅历史	bi [stu_id]	HistoryStu(stu_id, tag string)
		hs [stu_id]	
	查看某本图书借阅历史	hs [book_id]	
	修改密码	cp	ChangePassword(id string, t int)
Student	停用学生账号	ss [stu_id] [notes]	SuspendStuAcc(lib_id, stu_id, notes string)
	查书(模糊查找)	qu [keyword1] [keywrd2] [keyword3] qua [auther] qut [title] qui [isbn]	QueryBook(s1, s2, s3 string)
	借书	b [id1] [id2] (依赖于查书操作)	BorrowBook(stu_id, book_id string)
	还书	r [id1] [id2] (依赖于查看个人借阅信息操作)	ReturnBook(stu_id, book_id string)
	续借	e [id1] [id2] (依赖于查看个人借阅信息操作)	ExtendDDL(stu_id, book_id string)
	预订书籍	r [id1] [id2] (依赖于查书操作)	ReserveBook(stu_id, book_id string)
	取消预订	c [id1] [id2]	CancelReserve(stu_id, book_id string)
	查看个人借阅信息 (显示逾期未还的书)	bi	BorrowInfo(stu_id string)
	查看个人借阅记录	hs	HistoryStu(stu_id, tag string)
	修改密码	cp	ChangePassword(id string, t int)

默认功能

- h 查看帮助
- q 退出系统
- lo 退出登录
- qu [kw1] [kw2] [kw3] 根据关键词查询书籍
- qua [author] 根据author查询书籍
- qui [isbn] 根据isbn查询书籍
- qut [title] 根据title查询书籍

仓库地址

<https://github.com/NoSW/DBAss3>

测试

运行环境

```
go version go1.14.1 linux/amd64
```

功能演示

```
Welcome to the Library Management System!For Help, Type 'h'
Input your account and password
Account: admin
admin@Library-> h
al      [lib_id]      [password]      Add a librarian account,len(lib_id) = 5, 4<len(password)<4
as      [stu_id]      [password]      Add a student account,len(stu_id) = 10, 4<len(password)<4
rl      [lib_id]
rs      [stu_id]
cpl     [lib_id]      Change the password of Librarian
cps     [stu_id]      Change the password of Student
qu      [kw1] [kw2] [kw3] Query a book,at least one keyword.
qui     [ISBN]        Query a book by ISBN.
qua     [author]      Query a book by author.
qut     [title]       Query a book by title.
h       Display this help.
q       Quit the Program.
lo      Log out.
admin@Library-> al lib03 2222
admin@Library-> cpl lib03
Enter the new password: 1111
Enter the new password again:1111
admin@Library-> as stu0000005 2222
admin@Library-> rs stu0000005
admin@Library-> lo
```

系统管理员登录

添加图书管理员账号

直接修改密码

添加学生账号

删除学生账号

退出登录

```

Account: lib03
Password: 1111          图书管理员登录
Login successful! Account: lib03, Type: Librarian
lib03@Library-> ab 987111111111 DataBase Mike          添加图书
lib03@Library-> qu Data          根据关键词查询图书
id      book_id      ISBN      title      author      book_status
1      987111111111n001      987111111111      DataBase      Mike      301
lib03@Library-> hs stu0000001
-----Borrow Record-----
id      book_id      title      author      type      borrow_date      book_status
type: [306:borrow] [307:reserve] [308:return] [309:cancel_reserve]
lib03@Library-> hs stu0000001 0          查看学生借阅历史, 第3个参数对应type
-----Borrow Record-----
id      book_id      title      author      type      borrow_date      book_status
1      9870000000987n001      xxx      xxx      306      2023-02-25      302
2      9870000000619n001      xxx      xxx      306      2023-02-26      302
3      9870000000935n001      xxx      xxx      306      2023-02-28      302
4      9870000000347n001      xxx      xxx      306      2023-03-03      302
5      9870000000457n001      xxx      xxx      306      2023-03-10      302
6      9870000000784n001      xxx      xxx      306      2023-03-11      302
7      9870000000333n001      xxx      xxx      306      2023-03-12      302
8      9870000000972n001      xxx      xxx      306      2023-03-12      302
9      9870000000737n001      xxx      xxx      306      2023-03-12      302
10     987000000061n001      xxx      xxx      306      2023-03-16      302
11     9870000000771n001      xxx      xxx      306      2023-03-17      302
12     9870000000229n001      xxx      xxx      306      2023-03-18      302
13     9870000000856n001      xxx      xxx      306      2023-03-19      302
14     9870000000383n001      xxx      xxx      306      2023-03-20      302
15     9870000000752n001      xxx      xxx      306      2023-03-23      301
16     9870000000752n001      xxx      xxx      308      2023-03-31      301
17     9870000000240n001      xxx      xxx      306      2023-03-31      302
type: [306:borrow] [307:reserve] [308:return] [309:cancel_reserve]

```

```

lib03@Library-> hb 9870000000240n001          查询图书借阅历史
-----BookInfo-----
ISBN      title      author      book_status
9870000000240      xxx      xxx      302
-----Borrow History-----
id      stu_id      type      date
1      stu0000001      306      2023-03-31
lib03@Library-> bi stu0000001          查看学生当前个人借阅信息
-----BorrowInfo-----
id      book_id      title      author      borrow_date      return_date
1      9870000000987n001      xxx      xxx      2023-02-25      2023-04-06
2      9870000000619n001      xxx      xxx      2023-02-26      2023-04-07
3      9870000000935n001      xxx      xxx      2023-02-28      2023-04-09
4      9870000000347n001      xxx      xxx      2023-03-03      2023-04-12
5      9870000000457n001      xxx      xxx      2023-03-10      2023-04-19
6      9870000000784n001      xxx      xxx      2023-03-11      2023-04-20
7      9870000000737n001      xxx      xxx      2023-03-12      2023-04-21
8      9870000000972n001      xxx      xxx      2023-03-12      2023-04-21
9      9870000000333n001      xxx      xxx      2023-03-12      2023-04-21
10     987000000061n001      xxx      xxx      2023-03-16      2023-04-25
11     9870000000771n001      xxx      xxx      2023-03-17      2023-04-26
12     9870000000229n001      xxx      xxx      2023-03-18      2023-04-27
13     9870000000856n001      xxx      xxx      2023-03-19      2023-04-28
14     9870000000383n001      xxx      xxx      2023-03-20      2023-04-29
15     9870000000240n001      xxx      xxx      2023-03-31      2023-05-10
-----
Today is: 2023-04-10
The book is overdue      The book is free now      waiting for the book to be returned      The book is reserved by other
lib03@Library-> lo

```


Account: stu0000001
Password: 2222
Login successful! Account: stu0000001, Type: Student
stu0000001@Library-> bi

学生账号登录

查看个人借阅信息

BorrowInfo					
id	book id	title	author	borrow date	return date
1	9870000000987n001	xxx	xxx	2023-02-25	2023-04-06
2	9870000000619n001	xxx	xxx	2023-02-26	2023-04-07
3	9870000000935n001	xxx	xxx	2023-02-28	2023-04-09
4	9870000000347n001	xxx	xxx	2023-03-03	2023-04-12
5	9870000000457n001	xxx	xxx	2023-03-10	2023-04-19
6	9870000000784n001	xxx	xxx	2023-03-11	2023-04-20
7	9870000000737n001	xxx	xxx	2023-03-12	2023-04-21
8	9870000000972n001	xxx	xxx	2023-03-12	2023-04-21
9	9870000000333n001	xxx	xxx	2023-03-12	2023-04-21
10	9870000000061n001	xxx	xxx	2023-03-16	2023-04-25
11	9870000000771n001	xxx	xxx	2023-03-17	2023-04-26
12	9870000000229n001	xxx	xxx	2023-03-18	2023-04-27
13	9870000000856n001	xxx	xxx	2023-03-19	2023-04-28
14	9870000000383n001	xxx	xxx	2023-03-20	2023-04-29
15	9870000000240n001	xxx	xxx	2023-03-31	2023-05-10

表示已过期

生成随机递增日期的函数有误差

Today is: 2023-04-18

The book is overdue The book is free now waiting for the book to be returned The book is reserved by other

some books you reserved is free now, ready to borrow...
Return book: r [id1] [id2] ... (Or 'r a' return all)
Cancel reserve book: c [id1] [id2] ... (Or 'c a' cancel all)
Extend DDL: e [id1] [id2] ... (Or 'e a' extendDdl all)
'q'to continue.
r 10 11 12 13 14
stu0000001 returned:987000000061n001 successfully
stu0000001 returned:9870000000771n001 successfully
stu0000001 returned:9870000000229n001 successfully
stu0000001 returned:9870000000856n001 successfully
stu0000001 returned:9870000000383n001 successfully
stu0000001@Library-> lo

还书

Account: stu0000002
Password: 2222
Login successful! Account: stu0000002, Type: Student
stu0000002@Library-> qui 240

学生2登录

根据isbn查书

id	book id	ISBN	author	book_status
1	9870000000240n001	9870000000240	xxx	302

Borrow book: b [id1] [id2] ...
Reserve book: r [id1] [id2] ...
r 1
stu0000002 reservedd:9870000000240n001 successfully
stu0000002@Library-> bi

预订书 (这本书是学生1借走的)

BorrowInfo					
id	book_id	title	author	borrow_date	return_date
1	9870000000779n001	xxx	xxx	2023-02-27	2023-04-08
2	9870000000220n001	xxx	xxx	2023-02-28	2023-04-09
3	9870000000775n001	xxx	xxx	2023-03-03	2023-04-12
4	9870000000315n001	xxx	xxx	2023-03-06	2023-04-15
5	9870000000713n001	xxx	xxx	2023-03-14	2023-04-23
6	9870000000760n001	xxx	xxx	2023-03-15	2023-04-24
7	9870000000783n001	xxx	xxx	2023-03-17	2023-04-26
8	9870000000614n001	xxx	xxx	2023-03-19	2023-04-28
9	9870000000037n001	xxx	xxx	2023-03-21	2023-04-30
10	9870000000440n001	xxx	xxx	2023-03-23	2023-05-02
11	9870000000513n001	xxx	xxx	2023-03-24	2023-05-03
12	9870000000242n001	xxx	xxx	2023-03-26	2023-05-05
13	9870000000930n001	xxx	xxx	2023-03-27	2023-05-06
14	9870000000926n001	xxx	xxx	2023-03-27	2023-05-06
15	9870000000909n001	xxx	xxx	2023-03-31	2023-05-10
17	9870000000240n001	xxx	xxx	2023-04-22	

预订成功

Today is: 2023-04-30

The book is overdue The book is free now waiting for the book to be returned The book is reserved by other

some books you reserved is free now, ready to borrow...
Return book: r [id1] [id2] ... (Or 'r a' return all)
Cancel reserve book: c [id1] [id2] ... (Or 'c a' cancel all)
Extend DDL: e [id1] [id2] ... (Or 'e a' extendDdl all)
'q'to continue.
r a

选择归还所有书

stu0000002 returned:9870000000783n001 successfully
stu0000002 returned:9870000000440n001 successfully
stu0000002 returned:9870000000242n001 successfully
stu0000002 returned:9870000000713n001 successfully
stu0000002 returned:9870000000760n001 successfully
stu0000002 returned:9870000000614n001 successfully
stu0000002 returned:987000000037n001 successfully

```

stu0000002@Library-> lo
Account: stu0000001
Password: 2222
Login successful! Account: stu0000001, Type: Student
stu0000001@Library-> bi
-----BorrowInfo-----
id      book_id      title      author      borrow_date      return_date
1        9870000000987n001      xxx      xxx      2023-02-25      2023-04-06
2        9870000000619n001      xxx      xxx      2023-02-26      2023-04-07
3        9870000000935n001      xxx      xxx      2023-02-28      2023-04-09
4        9870000000347n001      xxx      xxx      2023-03-03      2023-04-12
5        9870000000457n001      xxx      xxx      2023-03-10      2023-04-19
6        9870000000784n001      xxx      xxx      2023-03-11      2023-04-20
7        9870000000737n001      xxx      xxx      2023-03-12      2023-04-21
8        9870000000972n001      xxx      xxx      2023-03-12      2023-04-21
9        9870000000333n001      xxx      xxx      2023-03-12      2023-04-21
10       9870000000240n001      xxx      xxx      2023-03-31      2023-05-10
-----
Today is: 2023-05-11
The book is overdue      The book is free now      waiting for the book to be returned      The book is reserved by other
-----
some books you reserved is free now, ready to borrow...
Return book: r [id1] [id2] ... (Or 'r a' return all)
Cancel reserve book: c [id1] [id2] ... (Or 'c a' cancel all)
Extend DDL: e [id1] [id2] ... (Or 'e a' extendDdl all)
'q' to continue.
r 10
stu0000001 returned:9870000000240n001 successfully
stu0000001@Library-> lo
Account: stu0000002
Password: 2222
Login successful! Account: stu0000002, Type: Student
stu0000002@Library-> bi
-----BorrowInfo-----
id      book_id      title      author      borrow_date      return_date
2        9870000000240n001      xxx      xxx      2023-04-22
-----
Today is: 2023-05-12
The book is overdue      The book is free now      waiting for the book to be returned      The book is reserved by other
-----
some books you reserved is free now, ready to borrow...
stu0000002 get reserve:9870000000240n001 successfully
Return book: r [id1] [id2] ... (Or 'r a' return all)
Cancel reserve book: c [id1] [id2] ... (Or 'c a' cancel all)
Extend DDL: e [id1] [id2] ... (Or 'e a' extendDdl all)
-----
lib01@Library-> bi stu0000001
-----BorrowInfo-----
id      book_id      title      author      borrow_date      return_date
1        9870000000049n001      xxx      xxx      2023-02-25      2023-04-06
2        9870000000568n001      xxx      xxx      2023-02-28      2023-04-09
3        9870000000609n001      xxx      xxx      2023-03-01      2023-04-10
4        9870000000847n001      xxx      xxx      2023-03-09      2023-04-18
5        9870000000951n001      xxx      xxx      2023-03-10      2023-04-19
6        9870000000468n001      xxx      xxx      2023-03-11      2023-04-20
7        9870000000105n001      xxx      xxx      2023-03-14      2023-04-23
8        9870000000859n001      xxx      xxx      2023-03-15      2023-04-24
9        9870000000649n001      xxx      xxx      2023-03-16      2023-04-25
10       9870000000696n001      xxx      xxx      2023-03-18      2023-04-27
11       9870000000204n001      xxx      xxx      2023-03-19      2023-04-28
12       9870000000834n001      xxx      xxx      2023-03-22      2023-05-01
13       9870000000354n001      xxx      xxx      2023-03-23      2023-05-02
14       9870000000410n001      xxx      xxx      2023-03-23      2023-05-02
15       9870000000365n001      xxx      xxx      2023-03-23      2023-05-02
-----
Today is: 2023-04-19
The book is overdue      The book is free now      waiting for the book to be returned      The book is reserved by other
-----
lib01@Library-> ss stu0000001
lib01@Library-> lo
Account: stu0000001
Password: 2222
This account has been suspended.
Account login failed! Try again?[Y/N]
Account: stu0000002
Password: 2222
Login successful! Account: stu0000002, Type: Student
stu0000002@Library-> bi
-----BorrowInfo-----
id      book_id      title      author      borrow_date      return_date
1        9870000000097n001      xxx      xxx      2023-02-24      2023-04-05
2        9870000000998n001      xxx      xxx      2023-02-25      2023-04-06
3        9870000000907n001      xxx      xxx      2023-02-26      2023-04-07
4        9870000000830n001      xxx      xxx      2023-02-26      2023-04-07
5        9870000000838n001      xxx      xxx      2023-02-26      2023-04-07
6        9870000000491n001      xxx      xxx      2023-02-27      2023-04-08
7        9870000000956n001      xxx      xxx      2023-02-28      2023-04-09
8        9870000000779n001      xxx      xxx      2023-03-03      2023-04-12
9        9870000000810n001      xxx      xxx      2023-03-05      2023-04-14
-----

```


10	9870000000669n001	xxx	xxx	2023-03-05	2023-04-14
11	9870000000741n001	xxx	xxx	2023-03-05	2023-04-14
12	9870000000866n001	xxx	xxx	2023-03-07	2023-04-16
13	9870000000020n001	xxx	xxx	2023-03-08	2023-04-17
14	9870000000965n001	xxx	xxx	2023-03-10	2023-04-19
15	9870000000184n001	xxx	xxx	2023-03-15	2023-04-24

Today is: 2023-05-01

The book is overdue The book is free now waiting for the book to be returned The book is reserved by other

some books you reserved is free now, ready to borrow...

Return book: r [id1] [id2] ... (Or 'r a' return all)

Cancle reserve book: c [id1] [id2] ... (Or 'c a' cancel all)

Extend DDL: e [id1] [id2] ... (Or 'e a' extendDdl all)

'q'to continue.

e a

stu0000002 exddl:9870000000810n001 successfully

stu0000002 exddl:9870000000669n001 successfully

stu0000002 exddl:9870000000741n001 successfully

stu0000002 exddl:9870000000965n001 successfully

stu0000002 exddl:987000000097n001 successfully

stu0000002 exddl:9870000000779n001 successfully

stu0000002 exddl:9870000000020n001 successfully

stu0000002 exddl:9870000000838n001 successfully

stu0000002 exddl:9870000000956n001 successfully

stu0000002 exddl:9870000000184n001 successfully

stu0000002 exddl:9870000000866n001 successfully

stu0000002 exddl:9870000000998n001 successfully

stu0000002 exddl:9870000000907n001 successfully

stu0000002 exddl:9870000000830n001 successfully

stu0000002 exddl:9870000000491n001 successfully

stu0000002@Library-> bi

-----BorrowInfo-----

id	book_id	title	author	borrow date	return date
1	987000000097n001	xxx	xxx	2023-05-03	2023-06-12
2	9870000000998n001	xxx	xxx	2023-05-05	2023-06-14
3	9870000000907n001	xxx	xxx	2023-05-05	2023-06-14
4	9870000000830n001	xxx	xxx	2023-05-06	2023-06-15
5	9870000000838n001	xxx	xxx	2023-05-05	2023-06-14
6	9870000000491n001	xxx	xxx	2023-05-07	2023-06-16
7	9870000000956n001	xxx	xxx	2023-05-05	2023-06-14
8	9870000000779n001	xxx	xxx	2023-05-03	2023-06-12
9	9870000000810n001	xxx	xxx	2023-05-02	2023-06-11
12	9870000000000n001	xxx	xxx	2023-05-03	2023-06-14
13	9870000000020n001	xxx	xxx	2023-05-04	2023-06-13
14	9870000000965n001	xxx	xxx	2023-05-03	2023-06-12
15	9870000000184n001	xxx	xxx	2023-05-05	2023-06-14

第一次续借

Today is: 2023-05-15

The book is overdue The book is free now waiting for the book to be returned The book is reserved by other

some books you reserved is free now, ready to borrow...

Return book: r [id1] [id2] ... (Or 'r a' return all)

Cancle reserve book: c [id1] [id2] ... (Or 'c a' cancel all)

Extend DDL: e [id1] [id2] ... (Or 'e a' extendDdl all)

'q'to continue.

e a

stu0000002 exddl:9870000000998n001 successfully

stu0000002 exddl:9870000000838n001 successfully

stu0000002 exddl:9870000000956n001 successfully

stu0000002 exddl:9870000000020n001 successfully

stu0000002 exddl:9870000000830n001 successfully

stu0000002 exddl:9870000000779n001 successfully

stu0000002 exddl:9870000000810n001 successfully

stu0000002 exddl:9870000000866n001 successfully

stu0000002 exddl:9870000000491n001 successfully

stu0000002 exddl:9870000000741n001 successfully

stu0000002 exddl:987000000097n001 successfully

stu0000002 exddl:9870000000907n001 successfully

stu0000002 exddl:9870000000669n001 successfully

stu0000002 exddl:9870000000965n001 successfully

stu0000002 exddl:9870000000184n001 successfully

stu0000002@Library-> bi

-----BorrowInfo-----

id	book_id	title	author	borrow date	return date
1	987000000097n001	xxx	xxx	2023-05-20	2023-06-29
2	9870000000998n001	xxx	xxx	2023-05-16	2023-06-25
3	9870000000907n001	xxx	xxx	2023-05-21	2023-06-30
4	9870000000830n001	xxx	xxx	2023-05-17	2023-06-26
5	9870000000838n001	xxx	xxx	2023-05-17	2023-06-26
6	9870000000491n001	xxx	xxx	2023-05-20	2023-06-29
7	9870000000956n001	xxx	xxx	2023-05-17	2023-06-26
8	9870000000779n001	xxx	xxx	2023-05-18	2023-06-27
9	9870000000810n001	xxx	xxx	2023-05-18	2023-06-27
10	9870000000669n001	xxx	xxx	2023-05-21	2023-06-30
11	9870000000741n001	xxx	xxx	2023-05-20	2023-06-29
12	9870000000866n001	xxx	xxx	2023-05-19	2023-06-28
13	9870000000020n001	xxx	xxx	2023-05-17	2023-06-26

第二次续借

```

stu0000002 exddl:987000000020n001 successfully
stu0000002 exddl:9870000000998n001 successfully
stu0000002 exddl:9870000000491n001 successfully
stu0000002 exddl:9870000000956n001 successfully
stu0000002 exddl:9870000000866n001 successfully
stu0000002 exddl:9870000000838n001 successfully
stu0000002 exddl:9870000000779n001 successfully
stu0000002 exddl:9870000000810n001 successfully
stu0000002 exddl:9870000000741n001 successfully
stu0000002 exddl:9870000000184n001 successfully
stu0000002@Library-> bi
-----BorrowInfo-----
id      book_id      title      auther      borrow date      return date
1        987000000097n001      xxx      xxx      2023-05-28      2023-07-07
2        9870000000998n001      xxx      xxx      2023-05-30      2023-07-09
3        9870000000907n001      xxx      xxx      2023-05-28      2023-07-07
4        9870000000830n001      xxx      xxx      2023-05-29      2023-07-08
5        9870000000838n001      xxx      xxx      2023-06-02      2023-07-12
6        9870000000491n001      xxx      xxx      2023-05-30      2023-07-09
7        9870000000956n001      xxx      xxx      2023-05-31      2023-07-10
8        9870000000779n001      xxx      xxx      2023-06-03      2023-07-13
9        9870000000810n001      xxx      xxx      2023-06-03      2023-07-13
10       9870000000669n001      xxx      xxx      2023-05-29      2023-07-08
11       9870000000741n001      xxx      xxx      2023-06-04      2023-07-14
12       9870000000866n001      xxx      xxx      2023-06-01      2023-07-11
13       9870000000020n001      xxx      xxx      2023-05-29      2023-07-08
14       9870000000965n001      xxx      xxx      2023-05-27      2023-07-06
15       9870000000184n001      xxx      xxx      2023-06-05      2023-07-15
-----
Today is: 2023-06-12
The book is overdue      The book is free now      waiting for the book to be returned      The book is reserv
some books you reserved is free now, ready to borrow...
Return book: r [id1] [id2] ...(Or 'r a' return all)
Cancel reserve book: c [id1] [id2] ... (Or 'c a' cancel all)
Extend DDL: e [id1] [id2] ... (Or 'e a' extendDdl all)
'q' to continue.
e a
No more ExtendDDL.
No more ExtendDDL.
No more ExtendDDL.
No more ExtendDDL.
No more ExtendDDL.
No more ExtendDDL.
No more ExtendDDL.

```

第三次续借

无续借次数

测试代码说明

- VirtualTime () 用于生成形如“2006-01-02”的字符串，每次程序需要获取当前时间时，要么在上一次调用的日期上加上一天，要么维持上一次调用结果不变，通过产生随机数0, 1控制概率相等。可通过开关VT控制，VT=false时，返回系统日期,VT=true时返回虚拟日期
 - TEATDATA() 插入预设的数据包括图书管理员账号*2，学生账号*4，图书*8，随机无内容图书*1000，随机借/还操作*1000
 - Library_test.go中提供了测试添加学生/图书管理员账号/图书的测试模块