图书馆借书系统ER图：

**Reader**

|  |  |
| --- | --- |
| **Archives** |  |

**LoanList**

**StockList**

**Admin**

Manage

Borow

Return

Query

Find

Verify

**reminder**

2.

图中各实体属性如下：

**Reader**：cardno, rename, sex

**Admin**：adminno，adname，code

**StockList**：ISBN，bookno

**LoanList**：bookno, cardno，borrowtime，hopereturntime

**Archives**：ISBN，bookname，author，publisher，publishingtime，price，category，ISBN, InStocktime

3. 逻辑结构设计

3.1 确定数据依赖

|  |  |
| --- | --- |
| 关系名 | 主 要 函 数 依 赖 |
| Admin  3NF | adminno—→(adname，code) |
| StockList  3NF | bookno—→(bookname e.t.c) |
| LoadList  3NF | bookno—→(borrowtime，returntime, cardno) |
| Reader  2NF | cardno—→(rename，sex， borrowbooknum，whethercanbo) |
| Archives  2NF | bookno—→(ISBN，bookname，author，publisher，publishingtime，abstract, price，category) |
| InstockList  3NF | bookno—→(adminno，bookname，instocktime) |
| returnList  3NF | cardno—→(name，bookno，bookname，borrowtime，returntime) |

3.2 数据依赖的优化与调整

(1) Reader：Reader (cardno，rename，sex， borrowbooknum，whethercanbo) 满足 3NF范式

(2) Admin：Admin (adminno, adname, code)满足 3NF 范式

(3) StockList：StockList(bookno, ISBN) 满足3NF 范式

(4) LoadList：LoadList (bookno, cardno, rename，bookname，borrowtime，whetherre)满足3NF 范式

(5) ReturnList：returnList (rename，bookno，bookname，borrowtime，returntime) 满足 3NF 范式

(6) Archives：Archives (bookno，bookname，author，publisher，publishingtime，abstract, price，category, leftnumber) 满足 3NF范式

(7) InstockLis：InstockList (bookno, adminno，bookname，instocktime) 满足 3NF范式

4.

CREATE TABLE [dbo].[Reader](

[cardno] [nchar](10) NOT NULL,

[rename] [nchar](10) NOT NULL,

[sex] [nchar](10) NOT NULL,

[borrowbooknum] [nchar](10) NOT NULL,

[wethercanbo] [nchar](2) NOT NULL,

CHECK ([wethercanbo] IN (’Y’,’N’)),

PRIMARY KEY(cardno)

)

CREATE TABLE [dbo].[Admin](

[adminno] [nchar](10) NOT NULL,

[adname] [nchar](10) NOT NULL,

[code] [nchar](10) NULL

PRIMARY KEY(adminno)

)

CREATE TABLE [dbo].[StockList](

[bookno] [nchar](10) NOT NULL,

[ISBN] [nvarchar](50) NOT NULL,

PRIMARY KEY(bookno)

)

CREATE TABLE [dbo].[LoadList](

[bookno] [nchar](10) NOT NULL,

[cardno] [nchar](10) NOT NULL,

[rename] [nchar](10) NOT NULL,

[bookname] [nvarchar](50) NOT NULL,

[borrowtime] [datetime] NOT NULL,

[whetherre] [nchar](2) NOT NULL,

PRIMARY KEY(bookno),

FOREIGN KEY(cardno) REFERENCES ReturnList ON UPDATE CASCADE

)

CREATE TABLE [dbo].[ReturnList](

[rename] [nchar](10) NOT NULL,

[bookno] [nchar](10) NOT NULL,

[bookname] [nchar](50) NOT NULL,

[borrowtime] [datetime] NOT NULL,

[returntime] [datetime] NOT NULL,

PRIMARY KEY(bookno)

)

CREATE TABLE [dbo].[Archives](

[bookno] [nchar](10) NOT NULL,

[bookname] [nvarchar](50) NOT NULL,

[author] [nchar](10) NOT NULL,

[pubulisher] [nchar](10) NULL,

[pubulishingtime] [datetime] NULL,

[abstract] [text] NULL,

[price] [money] NULL,

[category] [nchar](10) NULL,

[leftnumber] [int] NOT NULL,

PRIMARY KEY(bookno)

)

CREATE TABLE [dbo].[InstockList](

[bookno] [nchar](10) NOT NULL,

[adminno] [nchar](10) NOT NULL,

[bookname] [nvarchar](50) NOT NULL,

[instocktime] [datetime] NOT NULL,

PRIMARY KEY(bookno),

FOREIGN KEY(adminno) REFERENCES Admin ON UPDATE CASCADE

)