

一、设计目标与要求

1、课程设计目的：探讨如何开发数据库应用系统

2、课程设计要求：初步认识和了解ADO.NET；

掌握ADO.NET存取SQL Sever 2000数据库数据的基本方法；

掌握VB.NET操作数据库的方法。

二、课程设计的应用背景及实际工作流程

1、应用背景 电影协会租借电影给学生所用

2、工作流程

需求分析、概念设计、逻辑设计、数据库实施阶段、调试与测试

3、开发环境 SQL Sever 2000数据库、Microsoft Visual Studio 2005

编程语言：T-SQL，vb

三、数据库设计

1、需求分析

根据影片管理的特点，影片管理系统应具有如下基本功能：

(1) 能对系统用户进行管理；

(2)

能对租借学生数据进行管理，即可以对租借学生数据进行查询、增加、删除、修改操作；

(3)

可对影片数据进行管理，即可对影片数据进行查询、增加、删除、修改操作；

(4) 对影片数据的查询可以普通查询、按种类查询、按名称查询。

(5)

可对租借影片数据进行管理，即可对租借影片数据进行查询、增加、删除操作；

(6) 对租借影片数据的查询可以按学号、影片编号、影片种类查询。

2、概念设计

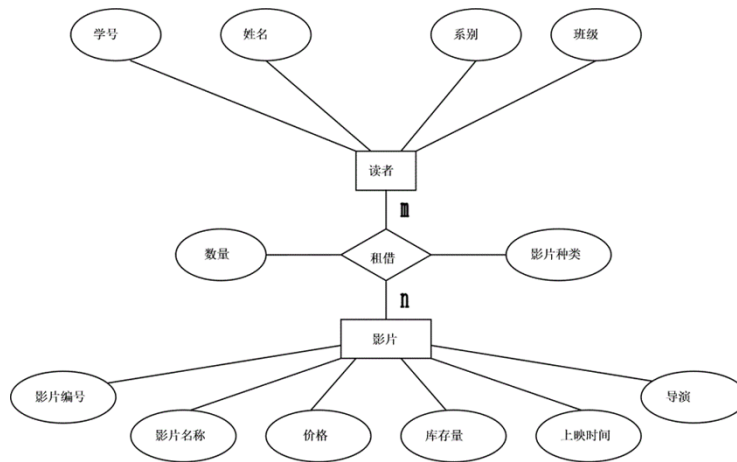
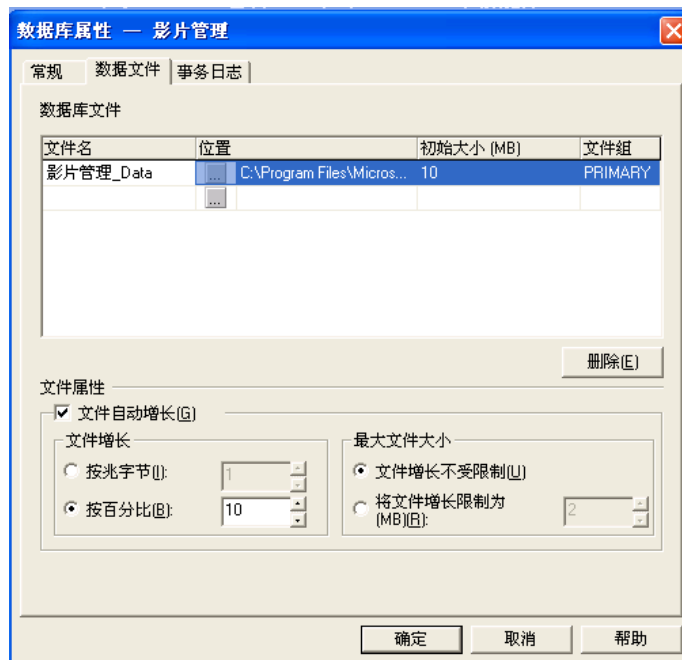


图1 影片管理系统的E-R简图

3、逻辑设计

创建“影片管理”数据库：

打开企业管理器，创建数据库



创建“用户”表：

设计表“用户”，位置是“影片管理”中、“(LOCAL)”上

列名	数据类型	长度	允许空
用户名	char	8	
密码	char	10	

图2 用户表

创建“租借学生信息”表：

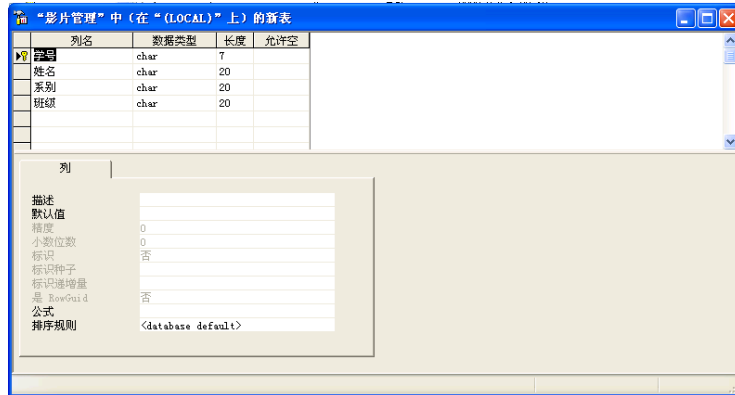


图4 租借学生信息表属性

创建“影片信息”表：

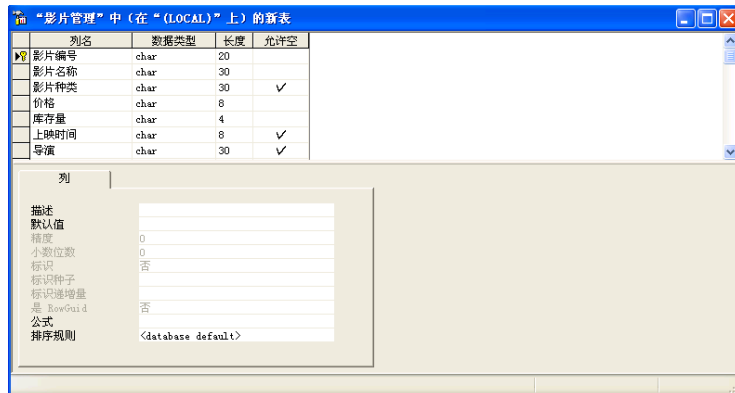


图5 创建影片信息表

创建“影片租借信息”表：

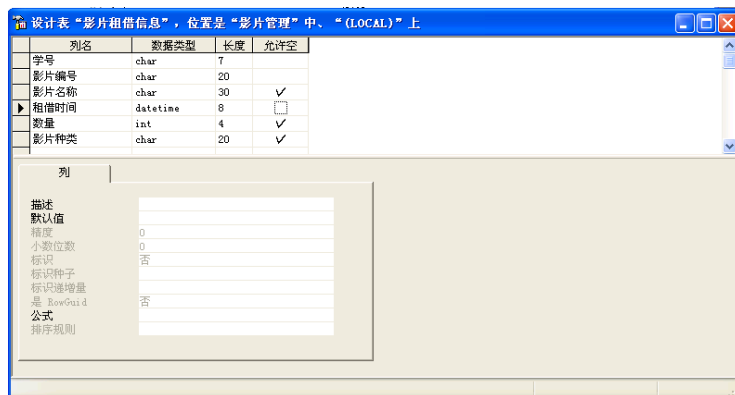


图6 创建影片租借信息表

四、应用系统设计

1、系统功能模块结构图

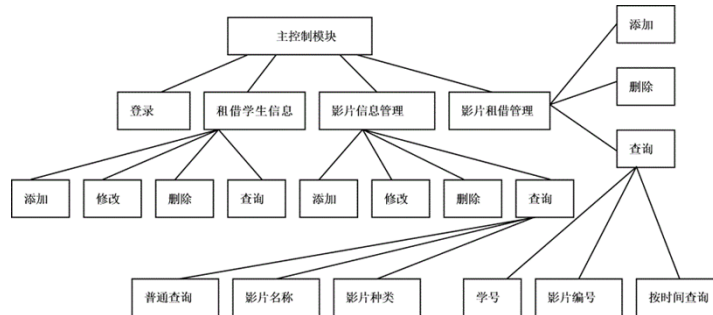


图6 影片管理系统功能模块图

2、主要模块的代码实现及关键部分的算法说明

1. 公共模块设计

```
Module Module1
```

```
Public flag As Integer
```

```
Public flagReader As Integer
```

```
Public flagBook As Integer
```

```
Public flagBorrow As Integer
```

```
Sub mian()
```

```
flag = 0
```

```
End Sub
```

End Module

2. 主控模块设计

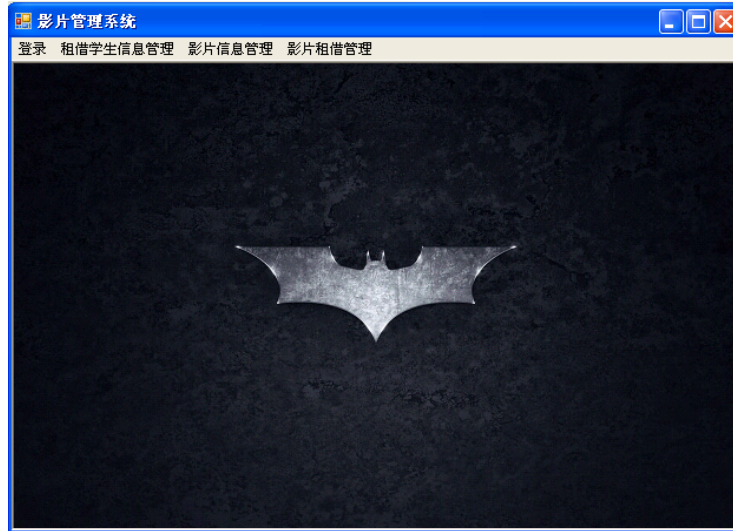


图8 主控界面的设计

主控界面的代码

```
Imports System.Data
```

```
Imports System.Data.SqlClient
```

```
Public Class Form1
```

```
Public Sub Form1_Load(ByVal sender As System.Object, ByVal e As  
System.EventArgs) Handles MyBase.Load
```

```
If flag = 0 Then
```

```
MenuItem2.Enabled = False
```

```
MenuItem3.Enabled = False
```

```
MenuItem4.Enabled = False
```

```
Else
```

```
MenuItem2.Enabled = True
```

```
MenuItem3.Enabled = True
```

```
MenuItem4.Enabled = True
```

```
End If
```

```
End Sub
```

```
Private Sub MenuItem1_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem1.Click
```

```
Dim objChild As New Form2()
```

```
objChild.MdiParent = Me
```

```
objChild.frm = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem5_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem5.Click
```

```
flagReader = 1
```

```
Dim objChild As New Form3()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem6_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem6.Click
```

```
flagReader = 2
```

```
Dim objChild As New Form3()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem7_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem7.Click
```

```
flagReader = 3
```

```
Dim objChild As New Form3()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```



```
Private Sub MenuItem8_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem8.Click
```

```
flagReader = 4
```

```
Dim objChild As New Form3()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem9_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem9.Click
```

```
flagBook = 1
```

```
Dim objChild As New Form4()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem10_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem10.Click
```

```
flagBook = 2
```

```
Dim objChild As New Form4()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem11_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem11.Click
```

```
flagBook = 3
```

```
Dim objChild As New Form4()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem13_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem13.Click
```

```
flagBook = 4
```

```
Dim objChild As New Form4()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem14_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem14.Click
```

```
Dim objChild As New Form7()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem15_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem15.Click
```

```
Dim objChild As New Form8()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem16_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem16.Click
```

```
flagBorrow = 1
```

```
Dim objChild As New Form5()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem17_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem17.Click
```

```
flagBorrow = 2
```

```
Dim objChild As New Form5()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem19_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem19.Click
```

```
flagBorrow = 3
```

```
Dim objChild As New Form5()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem20_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem20.Click
```

```
flagBorrow = 4
```

```
Dim objChild As New Form5()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
Private Sub MenuItem21_Click(ByVal sender As System.Object, ByVal e  
As System.EventArgs) Handles MenuItem21.Click
```

```
Dim objChild As New Form6()
```

```
objChild.MdiParent = Me
```

```
objChild.Show()
```

```
End Sub
```

```
End Class
```

3. 登录模块设计

(1) 登录界面设计

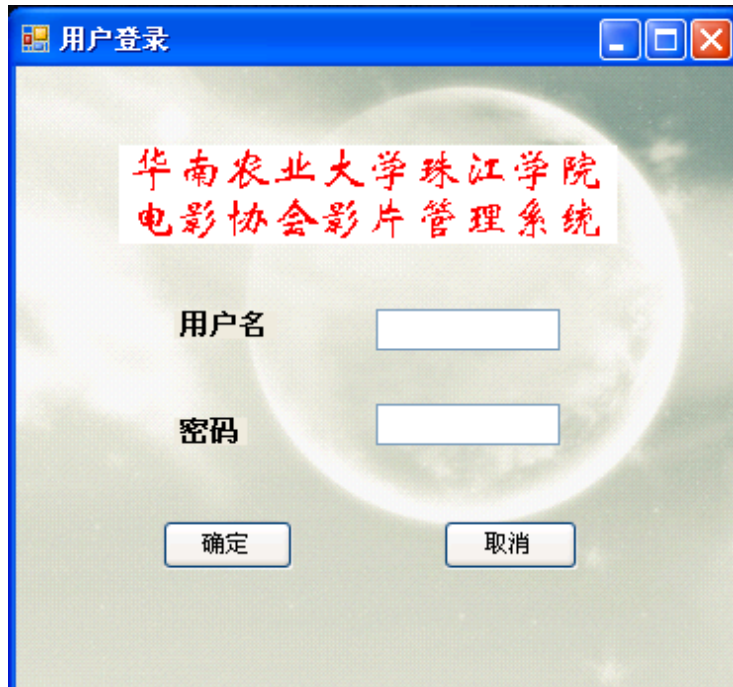


图9 登录界面的设计

(2) 主要代码

```
Imports System.Data
```

```
Imports System.Data.SqlClient
```

```
Public Class Form2
```

```
Public frm As Form1
```

```
Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As  
System.EventArgs) Handles Button1.Click
```

```
Dim myconn As SqlConnection = New  
SqlConnection("server=(local);user id=sa;pwd=123;database=影片管理")
```

```
Dim mydata As SqlDataAdapter

Dim mySet As New DataSet()

Dim mytable As New DataTable()

Dim sql As String

sql = "Select * from 用户 where 用户名=' " & Trim(TextBox1.Text) &
"" " & "and 密码=' " & Trim(TextBox2.Text) & "" "

mydata = New SqlDataAdapter(sql, myconn)

mydata.Fill(mySet, "用户")

mytable = mySet.Tables("用户")

If mytable.Rows.Count > 0 Then

flag = 1

frm.Form1_Load(New Object, New System.EventArgs)

Close()

Else

MsgBox("密码不正确，请重新输入!")

TextBox1.Text = ""

TextBox2.Text = ""
```


End If

End Sub

4. 租借学生信息管理模块设计

(1) 租借学生信息管理添加、修改、删除、查询界面设计

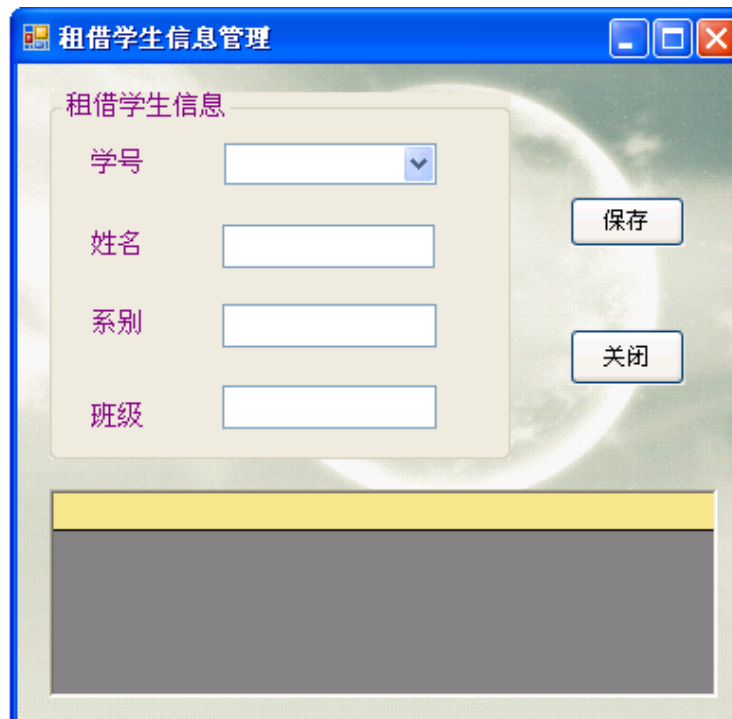


图10 租借学生信息管理界面设计

(2) 主要代码

```
Imports System.Data
```

```
Imports System.Data.SqlClient
```

```
Public Class Form3
```

```
Private Sub Form3_Load(ByVal sender As System.Object, ByVal e As  
System.EventArgs) Handles MyBase.Load
```

```
    Select Case flagReader
```

```
    Case 1
```

```
        Button1.Text = "添加"
```

```
    Case 2
```

```
        Button1.Text = "修改"
```

```
    Case 3
```

```
        Button1.Text = "删除"
```

```
    Case 4
```

```
        Button1.Text = "查询"
```

```
    End Select
```

```
    Display()
```

```
End Sub
```

```
Private Sub Display()
```

```
    Dim myconn As SqlConnection = New  
    SqlConnection("server=(local);user id=sa;pwd=;database=影片管理")
```

```
    Dim mydata As SqlDataAdapter
```

```
Dim mySet As New DataSet()
```

```
Dim mytable As New DataTable()
```

```
Dim sql As String
```

```
Dim i As Integer
```

```
sql = "Select*from 租借学生信息"
```

```
mydata = New SqlDataAdapter(sql, myconn)
```

```
mydata.Fill(mySet, "租借学生信息")
```

```
mytable = mySet.Tables("租借学生信息")
```

```
DataGrid1.DataSource = mySet.Tables("租借学生信息")
```

```
For i = 0 To mytable.Rows.Count - 1
```

```
ComboBox1.Items.Add(mytable.Rows(i).Item(0))
```

```
Next
```

```
End Sub
```

```
Private Sub ComboBox1_SelectedIndexChanged(ByVal sender As  
System.Object, ByVal e As System.EventArgs) Handles  
ComboBox1.SelectedIndexChanged
```

```
Dim myconn As SqlConnection = New  
SqlConnection("server=(local);user id=sa;pwd=;database=影片管理")
```

```
Dim mydata As SqlDataAdapter

Dim mySet As New DataSet()

Dim mytable As New DataTable()

Dim sql As String

sql = "Select*from 租借学生信息 where 学号=' " &
Trim(ComboBox1.Text) & "' "

mydata = New SqlDataAdapter(sql, myconn)

mydata.Fill(mySet, "租借学生信息1")

mytable = mySet.Tables("租借学生信息1")

If mytable.Rows(0).Item(0) = ComboBox1.Text Then

TextBox1.Text = mytable.Rows(0).Item(1)

TextBox2.Text = mytable.Rows(0).Item(2)

TextBox3.Text = mytable.Rows(0).Item(3)

End If

End Sub

Private Sub DataGrid1_Navigate(ByVal sender As System.Object, ByVal
ne As System.Windows.Forms.NavigateEventArgs) Handles DataGrid1.Navigate
```

```
Dim myconn As SqlConnection = New
SqlConnection("server=(local);user id=sa;pwd=;database=影片管理")

Dim mydata As SqlDataAdapter

Dim mySet As New DataSet()

Dim mytable As New DataTable()

Dim sql As String

sql = "Select*from 租借学生信息"

mydata = New SqlDataAdapter(sql, myconn)

mydata.Fill(mySet, "租借学生信息2")

mytable = mySet.Tables("租借学生信息2")

Dim i As Integer

For i = 0 To mytable.Rows.Count - 1

If DataGrid1.IsSelected(i) Then

ComboBox1.Text = mytable.Rows(i).Item(0)

TextBox1.Text = mytable.Rows(i).Item(1)

TextBox2.Text = mytable.Rows(i).Item(2)

TextBox3.Text = mytable.Rows(i).Item(3)
```

End If

Next

End Sub

Private Sub Button1_Click(ByVal sender As System.Object, ByVal e As System.EventArgs) Handles Button1.Click

Dim myconn As SqlConnection = New
SqlConnection("server=(local);user id=sa;pwd=;database=影片管理")

Dim mydata As SqlDataAdapter

Dim mySet As New DataSet()

Dim mytable As New DataTable()

Dim sql As String

Dim i As Integer

Dim StudentID, name, department, cla As String

Select Case flagReader

StudentID = ComboBox1.Text

ComboBox1.Items.Add(Trim(StudentID))

name = TextBox1.Text

```
department = TextBox2.Text
```

```
cla = TextBox3.Text
```

```
sql = "Select * from 租借学生信息"
```

```
mydata = New SqlDataAdapter(sql, myconn)
```

```
mydata.Fill(mySet, "租借学生信息3")
```

```
mytable = mySet.Tables("租借学生信息3")
```

```
For i = 0 To mytable.Rows.Count - 1
```

```
If mytable.Rows(i).Item(0) = StudentID Then
```

```
MsgBox("这个学号已存在!", vbOKOnly + vbExclamation, "警告")
```

```
Exit Sub
```

```
End If
```

```
Next
```

```
sql = "insert into 租借学生信息(学号,姓名,系别,班级)values(" & " ' " & StudentID & "', ' " & name & "', ' " & department & "', ' " & cla & "' )"
```

```
mydata = New SqlDataAdapter(sql, myconn)
```

```
mydata.Fill(mySet, "save")
```

```
DataGrid1.DataSource = mySet.Tables("save")
```

```
Display()
```

```
MsgBox("数据已添加!", vbOKOnly + vbExclamation, "提示")
```

```
name = TextBox1.Text
```

```
department = TextBox2.Text
```

```
cla = TextBox3.Text
```

```
sql = "Select * from 租借学生信息 where 学号=' " & ComboBox1.Text &  
""
```

```
mydata = New SqlDataAdapter(sql, myconn)
```

```
mydata.Fill(mySet, "租借学生信息3")
```

```
mytable = mySet.Tables("租借学生信息3")
```

```
If mytable.Rows.Count = 0 Then
```

```
MsgBox("这个学号不存在，不能修改!")
```

```
Exit Sub
```

```
End If
```

```
sql = "update 租借学生信息 set 姓名=' " & name & "',系别=' " &  
department & "',班级=' " & cla & "' where 学号=' " & ComboBox1.Text & "'"
```

```
mydata = New SqlDataAdapter(sql, myconn)
```



```
mydata.Fill(mySet, "update")
```

```
DataGrid1.DataSource = mySet.Tables("update")
```

```
Display()
```

```
MsgBox("数据已修改!", vbOKOnly + vbExclamation, "提示")
```

```
sql = "Select * from 租借学生信息 where 学号=' " & ComboBox1.Text &  
"" "
```

```
mydata = New SqlDataAdapter(sql, myconn)
```

```
mydata.Fill(mySet, "租借学生信息3")
```

```
mytable = mySet.Tables("租借学生信息3")
```

```
If mytable.Rows.Count = 0 Then
```

```
MsgBox("这个学号不存在, 不能删除!")
```

```
Exit Sub
```

```
End If
```

```
sql = "delete from 租借学生信息 where 学号=' " & ComboBox1.Text &  
"" "
```

```
mydata = New SqlDataAdapter(sql, myconn)
```

```
mydata.Fill(mySet, "delete")
```

```
DataGrid1.DataSource = mySet.Tables("delete")
```

```
Display()
```

```
MsgBox("数据已删除!", vbOKOnly + vbExclamation, "提示")
```

```
Case 4
```

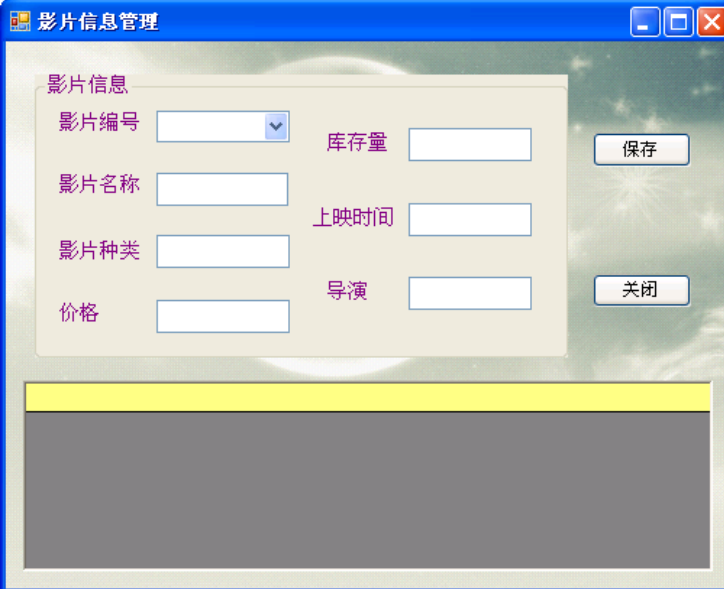
```
MsgBox("请直接通过选择相应的记录进行查询!")
```

```
End Select
```

```
End Sub
```

5. 影片信息管理模块设计

(1) 影片信息管理添加、修改、删除、查询界面设计



The screenshot shows a Windows application window titled "影片信息管理" (Movie Information Management). The window contains a form with the following fields and controls:

- 影片信息** (Movie Information) section:
 - 影片编号 (Movie ID): A dropdown menu.
 - 影片名称 (Movie Name): A text input field.
 - 影片种类 (Movie Type): A text input field.
 - 价格 (Price): A text input field.
 - 库存量 (Inventory): A text input field.
 - 上映时间 (Release Time): A text input field.
 - 导演 (Director): A text input field.
- Buttons: "保存" (Save) and "关闭" (Close) buttons are located on the right side of the form.
- Below the form is a large empty area, likely for a data grid or list.

图11 影片信息管理界面设计

(2) 主要代码

```
Imports System.Data

Imports System.Data.SqlClient

Public Class Form4

    Private Sub Form4_Load(ByVal sender As System.Object, ByVal e As
System.EventArgs) Handles MyBase.Load

        Select Case flagBook

            Case 1

                Button1.Text = "添加"

            Case 2

                Button1.Text = "修改"

            Case 3

                Button1.Text = "删除"

            Case 4

                Button1.Text = "查询"

        End Select

        Display()

    End Sub
```

```
Private Sub Display()  
  
    Dim myconn As SqlConnection = New  
SqlConnection("server=(local);user id=sa;pwd=;database=影片管理")  
  
    Dim mydata As SqlDataAdapter  
  
    Dim mySet As New DataSet()  
  
    Dim mytable As New DataTable()  
  
    Dim sql As String  
  
    Dim i As Integer  
  
    sql = "Select*from 影片信息"  
  
    mydata = New SqlDataAdapter(sql, myconn)  
  
    mydata.Fill(mySet, "影片信息")  
  
    mytable = mySet.Tables("影片信息")  
  
    DataGrid1.DataSource = mySet.Tables("影片信息")  
  
    ComboBox1.Items.Clear()  
  
    For i = 0 To mytable.Rows.Count - 1  
  
        ComboBox1.Items.Add(mytable.Rows(i).Item(0))  
  
    Next
```

```
End Sub
```

```
Private Sub ComboBox1_SelectedIndexChanged(ByVal sender As  
System.Object, ByVal e As System.EventArgs) Handles  
ComboBox1.SelectedIndexChanged
```

```
Dim myconn As SqlConnection = New  
SqlConnection("server=(local);user id=sa;pwd=;database=影片管理")
```

```
Dim mydata As SqlDataAdapter
```

```
Dim mySet As New DataSet()
```

```
Dim mytable As New DataTable()
```

```
Dim sql As String
```

```
sql = "Select*from 影片信息 where 影片编号=' " &  
Trim(ComboBox1.Text) & "' "
```

```
mydata = New SqlDataAdapter(sql, myconn)
```

```
mydata.Fill(mySet, "影片信息1")
```

```
mytable = mySet.Tables("影片信息1")
```

```
If mytable.Rows(0).Item(0) = ComboBox1.Text Then
```

```
TextBox1.Text = mytable.Rows(0).Item(1)
```

```
TextBox2.Text = "" + mytable.Rows(0).Item(2)
```

```
TextBox3.Text = mytable.Rows(0).Item(3)
```

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