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Design and Implementation of Book Order System Based on Silverlight

¹Chun-gui Liu, ¹Zhong Zhao and ²Shao-ying Zhu

¹Department of Computer Science, Shanxi Datong University, 037009, Datong, China

²Business School, Shanxi Datong University, 037009, Datong, China

Abstract: Design a beautiful and unique pages, not only can deliver the most abundant of information but also make people to enjoy the arts. In this paper, the system is based on the technology of Silverlight. Pages of the system are achieved by using the basic Widgets of Silverlight and Telerik Widgets. These pages not only implemented some basic functions, such as query books, browse popular books, see book sales but also show a more brilliant picture effect to the Web surfers to meet their higher all-round experience requirements; Operation logic part of the system operate the database using C# language and provide services to the front page. Since Silverlight is a subset of .NET framework and does not access to database directly, so in terms of interaction with the database using the WCF (Windows Communication Foundation). Supported by WCF, the developers can build cross-platform, secure, reliable and support enterprise-class transaction processing solutions for Internet applications.

Key words: Silverlight, WCF, B/SStructure, book order system

INTRODUCTION

In recent years, the Web developers have been trying to build a more plentiful client than the traditional HTML. It is a user interface that is more robust than the interface with HTML and the reaction is more sensitive and more interesting visual characteristics (Braude, 2011). RIA (Rich Internet Application) technology permits us to deploy the client program on Internet with the using the way of Web. No matter whether RIA can completely replace HTML application system in the future, for those who adopt C/S structure of the fat client technology to run the institution of the complex application system and adopt the thin client technology which deploy the institution of the Web application system based on B/S structure.

The design of the Book Order System is a kind of design based on the Silverlight and exists many difference compared with ASP.NET, for example more beautiful page effect and more convenient the binding of the background data. It spreads all kinds of books information through the visual. On the other hand, creating shopping website can not only reduce manpower and material resources largely but also can be beneficial to expand marketing channels and improve the efficiency and set up the enterprise image etc.

SILVERLIGHT

Silverlight overview: Silverlight is a development solution that Microsoft developed a Web front-end program and

is one of the main application development platforms of Microsoft's RIA internet strategy (Jackson, 1975). Browser plugs-in component approach to the provision of multimedia Web applications (including video streaming and audio streaming) and interactive front-end application solutions highly (Zhang, 2008).

Silverlight procedure: The procedure of Silverlight is shown in Fig. 1.

WCF: Windows Communication Foundation (WCF) is a set of application programming interface of the data communication developed by Microsoft which it is a part of .NET framework and Microsoft design a unified model for the program development with data communications providing the most flexible and the most basic support (Vliet, 2000).

For the client of the WCF, WCF services like Web Service and all connection of the WCF service is run by the service agent of the client in Visual Studio and the service agent is called as the service reference in Visual Studio. By adding WCF service reference in Visual Studio, Visual Studio will automatically help the developers to do some necessary work (For example, to create and generate Service Proxy configuration, etc) and the developers only need to access service proxy object code.

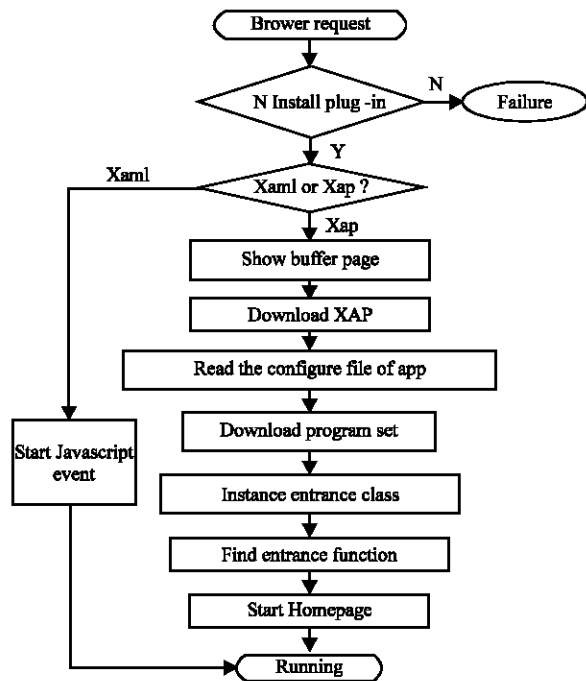


Fig. 1: start procedure of Silverlight

SYSTEM REQUIREMENTS ANALYSIS AND FEASIBILITY STUDY

Feasibility study technical feasibility: With the rapid development of the modern computer hardware and software technology, it provides the technical conditions for construction of the system. As the shopping system already has a mature case, by studying the similar systems and analysis the size and complexity of the system, determine to Visual studio 2010 and SQL Server database development tools combined, mature technology, to achieve the user's requirements, so it is technically feasible.

The feasibility of running: Currently the performance of the computer software and hardware can be used to meet the smooth running of the software. The system is a small system which is normally operated in general computers and the system which can easily be used with no need for specialized training of operating personnel is easy to operate. So the system is feasible in the running.

Requirement analysis:

- Reducing costs. E-commerce business can greatly reduce the human and material resources; at the same

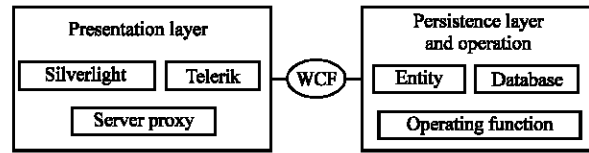


Fig. 2: Architecture of book order system

time, making transactions exceeded the limits of time and space, which at any time, any place reduces costs and improved efficiency

- Help to establish the image of the site. As the fourth medium of the Internet which is characterized by across time and space. The site work all the time under the normal circumstances. Through the textbook website, the user can understand the digital shop across time and space. The site can demonstrate the product. The site can show the product and the company's image to the user by taking advantage of multimedia technology
- Help to enlarge the markets and increase sales effectiveness. Bookstore could be carried out through the website e-marketing as the supplement of traditional marketing; E-marketing can extend the new space and increasing sales channels
- Help to improve the service and service quality. Utilizing the site and the way of the electronic communication, it can carry out online services to grasp the needs of users timely and accurately. It allows passive providing and active attaining through the interactive website service in order to achieve before service, after service and the sale service of the whole process and a full range of services

Website can not only reduce the manpower and material resources largely and increase the occupying rate of the market share but also all friends can enjoy all the benefits offered by electronic commerce(4convenient and efficient service which is carried out e-marketing services through the website.

SYSTEM DESIGN AND FUNCTION DEVELOPMENT

Design of the whole architecture: The whole architecture of book order system is shown as Fig. 2.

Presentation layer:

Home: Some books that will be placed on the home page are browsed for visitors. There is a rotating six-sided that can navigate to different pages in the upper left corner.

Table 1: User list

User name	Varchar ()
Password	Int
Nick Name	Varchar ()

Table 2: Library list

Id	Int
Book name	Varchar ()
Author	Varchar ()
Price	Int

Table 3: Book sale list

Id	Int
Sale_amount	Varchar ()
Sale_date	Varchar ()
Type	Int

However, due to limited page space, home is impossible to show all of the information to viewer in detail.

Login/Register: The two icons of login and register correspond to the two sub-windows respectively and the appropriate functional widget can be used to fill the user data in order to achieve the login and registration functions.

Site profile: The interface of a book is given and flipped through the dynamic mouse. The basic situations of ABook Order System@ are introduced and allow the visitors to understand the use of the site simply, to increase consumer awareness for the site and the confidence in online transactions. The contents of the book describe the use of website rules.

The list of popular books: This page will show the books in front of the viewer and show the dynamic effects with the choice of different browsers. In the book list, users can enjoy on a section of the product by clicking the product picture. You can easily have a comprehensive understanding of their prices (morphology and other aspects).

Sales statistics: View easily the recent book sales and compare with different book sales mainly for the site administrator.

Query books: Click the query and then find out the database of the corresponding books and at last display table in the DataGrid by entering the content of books.

Persistence layer

Entity class: We define a corresponding entity class for each database table in system design. Entity class is used

to store the result set after the database operation. This project provides a database with a A_*@ format name and corresponds entity class with initial capital letters. The system which uses a database table includes: _users, _books, _amount, they are shown as Table 1, 2 and Table 3.

Operation logical layer: Operation Logic Layer (the class of the operation database): There has a different database operation for different functions. Here follow the same method of operation of a database and put on the same class of the database operation. The main method of the operation logic layer is:

```

getUser (string username,string password);
regUser (User u);
selectAmount(string startDate, string endDate)
selectTypeAmount (string startDate, string
endDat, string type)
    
```

(1) _users(userName,password, nickname)

Visit the registration page: When users login, the system query the database table to judge whether the legitimate user according to the user name password:

```

Private string connectionString =
WebConfigurationManager.AppSettings["DbServiceConnectionString"]
Public bool GetUser ( string cUserName , string cPassword )
{SqlConnection conn = new
SqlConnection ( connectionString ); Try { conn.Open () ;
Cmd.CommandText ( " select * from _users where userName = '"+
cUserName + "' " );
SqlDataReader reader = cmd.ExecuteReader () ; if ( reader.Read () ) {
Users user = new Users (( string )reader["userName "], ( string ) reader["
password"]);
if ( user.Password == ( string ) reader [" password "] ) return true ; }
Else { return false ; } } else { return false ; } } Finally {conn.Close () ; }
    
```

When users register the system, it will insert a new user in _user list:

```

Public void regUser (Users u ) {
SqlConnection conn= new SqlConnection(connectionString);
SqlDataAdapter thisAdapter = new SqlDataAdapter("select*
from _user",thisConnection); DataSet thisDataSet= new DataSet();
thisAdapter.Fill(thisDataSet,"tables "); DataRow thisRow= thisDataSet
.Tables ["_user"].NewRow(); thisRow["userName "] = u.UserName;
thisRow["password"] = u.password; thisRow["nickName"] = u.nickName;
thisDataSet.Tables["_user"].Rows.Add(thisRow);
thisAdapter.Update(thisDataSet,"_user"); }
    
```

Book sales page: Return the sum of sales of this period time according to the sales time.

```
public int selectAmount(string startDate, string endDate)
{SqlConnection conn = new
SqlConnection(connectionString);
Try {conn.Open(); SqlCommand cmd = conn.CreateCommand();
Cmd.CommandText(" select sum(amount) from _amount where
sale_date between"+startDate+ ""and ' ' +endTime +""",
thisConnection);
SqlDataReader reader = cmd.ExecuteReader(); If (reader.Read()){ return
reader["sum(amount)"];} finally {conn.Close(); } }
```

Return to some type of book sales of this time according to sales time.

```
public int selectTypeAmount (string startDate , string endDate
string type ){ List<TypeAmount > li=newList < TypeAmount >();
SqlConnection conn = new SqlConnection (connectionString ) ;
Try {conn.Open () ; SqlCommand cmd = conn.CreateCommand () ;
cmd.CommandText ( " select type ,sum( amount ) from _amount
where sale _date bitween "" + startDate+ ""and ""+ endTime
+"" group by type" ,thisConnection ); SqlDataReader reader = cmd
.ExecuteReader () ; While (reader .Read ()) { TypeAmount a = new
TypeAmount () ; A.type = reader [ " type" ] ; A.sums = reader [ "
sum( amount )" ] ; Li.Add(a ); } Finally { conn.Close() ; } return
li ;
```

CONCLUSION

We design a beautiful and unique pages, not only can deliver the most abundant information but also make people to enjoy the arts by using the basic widgets of Silverlight 4.0 and Telerik widgets. The developers can

build cross-platform, secure, reliable and support enterprise-class transaction processing solutions for Internet applications WCF. However, the function of the system is not perfect. It needs to be further improved on the aspects of the function-comprehensive and interface-aesthetics.

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