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# The Online Shopping System of the Web Service Technology with B2B Framework

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## Abstract

This paper analyzes the Web services architecture, technology infrastructure and the mode of operation for Web Services in the online shopping. This design the based Web Services in B2B electronic transaction management system by using the C # and SQL Server database. The characteristic is to analysis deep the Web Services technology and use it to the online shopping system.

**Index Terms:** Web Service, B2B, Ecommerce, Online shopping

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## 1. Introduction

There are three roles in the Web Service environment, which are the service provider, service registry and service requestor. The Web Service architecture is based on the interaction between the three roles. The interaction involves the publish messages, find operations and bind operations. The Web Service provider defined the description of services and to publish it to the service requestor or service registry. Service requestor uses the find operation to service up to do from local or updated service description retrieval, and then use the service description to bind with the service provider and call the Web Service implementation or interact with it[1]. Service provider and service requestor roles are logical structure, which services can be expressed in two properties. All functions are done in this B2B electronic transaction management system through the Web Service, Web Service implements all the business rules[2].

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## 2. Technical principles and design

B2B is business To business, that is business to business via the internet products, services, and information exchange. All the supply and demand of customers is in the supply and demand information released on this platform, sellers find buyers by releasing the information available, the buyer needs information through publishing identify sellers, both supply and demand are in the online direct intention to reach a deal. The system flow chart is shown in figure 1.

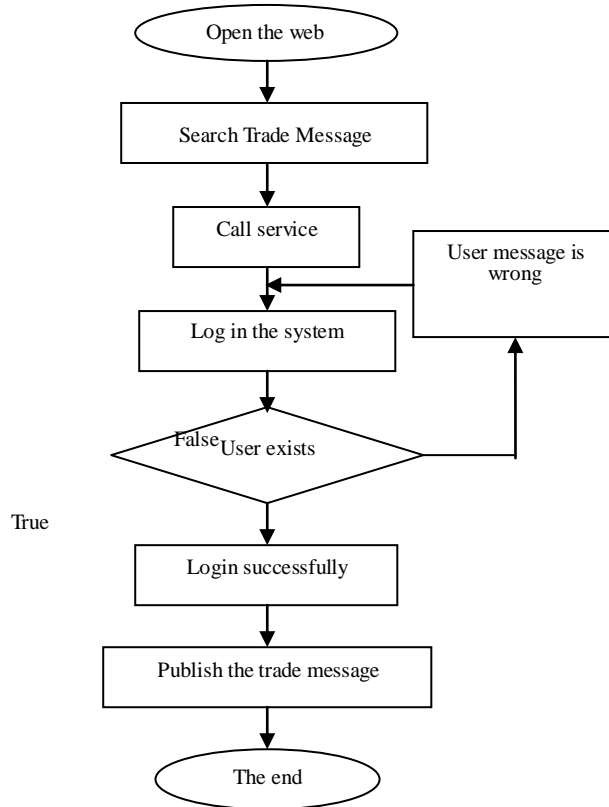


Fig.1 Management System flow chart

Based on the preceding analysis, the use of Web Service technology to the actual situation of production technologies, to design a Web Service based on the B2B electronic transaction management system, the system management function module is shown in figure 2.

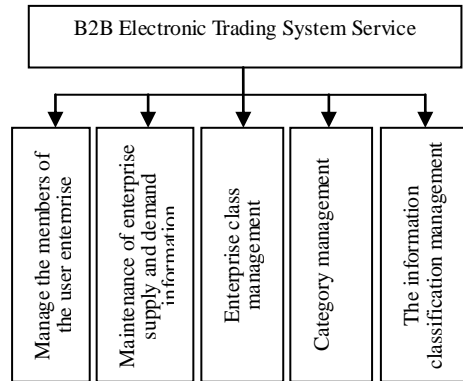


Fig.2 System Service

The B2B electronic transaction management system includes the management functions.

(1) Manage the members of the user enterprise.

The main function of the management is the member companies to achieve, not to manage for tourists.

(2) Maintenance of enterprise supply and demand information.

The main function is to achieve the maintenance of supply and demand information, and to allow members to publish and query all the normal supply and demand information inside this online shopping system.

(3) Enterprise class management.

The main function can manage the different types of enterprise.

(4) Category management.

It can manage the different sectors to achieve enterprise information.

(5) The information classification management.

The main function is to achieve the management of supply and demand classified information.

The figure 3 shows the system trading member function.

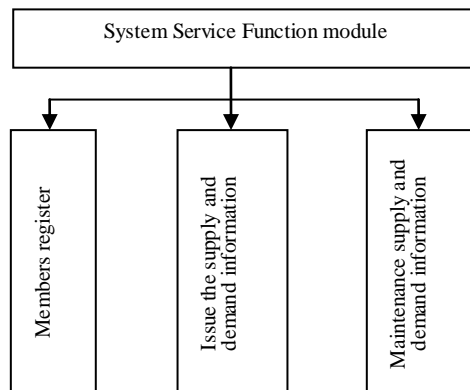


Fig.3 Member Management Service

There are three important features that is included by the members of B2B electronic transaction management system.

Members register.

The main function is that the log achieves membership. If the input information is correct that login is successful, the register can not log on.

(1) Issue the supply and demand information.

Only the success register member has the power of supply and demand information released.

(2) Maintenance supply and demand information.

If the register members find themselves changed supply and demand information to be modified, this is mainly realized the demand and supply information to their modification and maintenance.

### **3. System implementation**

System uses the web service technology to achieve them; the technology in the system is mainly used in B2B electronic trading platform of services above. The all operation is completed by the Web Service, such as read data and write data. This system is realized by using Microsoft Visual Studio 2008 with C#. This programming feature is the ability to reduce development effort and improve development efficiency, and Microsoft Visual Studio 2008 can automatically generate WSDL description [3].

#### *A. SOAP Message realization*

All SOAP messages will eventually reverse order into objects for further processing in the Web Service. And the SOAP message will be included in each type that must be to the right into a sequence of XML documents. It must have a correct sequence of the type of serialize and a deserializer, otherwise the SOAP server cannot function properly.

#### *B. Data Access Layer*

The system separates from the database and application details, so we can use Microsoft Enterprise Library to implement the database access layer. In short, the Microsoft Enterprise Library Data module can locate the database configuration file by configuring the Web Service. It completes three major tasks, that are to establish a connection with the database, to send SQL statements, and the SQL execution results back.

The following is the service part of the Web Service code.

```
public class Service : System.Web.Services.WebService
{
public Service () {
}
```

```
[WebMethod]
public DataTable GQ_TABLE(int id)
{
    Database db = DatabaseFactory.CreateDatabase();
    DataSet ds;
    System.Data.Common.DbCommand cmd = db.GetStoredProcCommand("GQView");
    cmd.Parameters.Add(new SqlParameter("@ID", id));
    ds = db.ExecuteDataSet(cmd);
    if (ds.Tables.Count > 0)
        return ds.Tables[0];
    else
        return new DataTable();
}

[WebMethod]
public DataTable QY_TABLE(int id)
{
    Database db = DatabaseFactory.CreateDatabase();
    DataSet ds;
    System.Data.Common.DbCommand cmd = db.GetStoredProcCommand("QYView");
    cmd.Parameters.Add(new SqlParameter("@ID", id));
    ds = db.ExecuteDataSet(cmd);
    if (ds.Tables.Count > 0)
        return ds.Tables[0];
    else
        return new DataTable();
}

[WebMethod]
public DataTable CP_TABLE(int id)
{
    Database db = DatabaseFactory.CreateDatabase();
    DataSet ds;
    System.Data.Common.DbCommand cmd = db.GetStoredProcCommand("CPView");
    cmd.Parameters.Add(new SqlParameter("@ID", id));
    ds = db.ExecuteDataSet(cmd);
    if (ds.Tables.Count > 0)
        return ds.Tables[0];
    else
        return new DataTable();
}
```

}

### *C. Implementation of service description*

Valid WSDL document is usually defined by the interface definition and implementation. These two documents are normally stored in the two separate documents, one document described using WSDL service interface definition, and the other documents used to describe the implementation WSDL binding definition.

The Order List Report\_Service.wsdl document is realized with the WSDL implementation document in the system of buy services declared. Order List Report\_Interface.wsdl is the WSDL binding document. The following system implementation will be described in two documents on the get Order List () method of the service description to a brief description of the generated code that is described in the document.

The WSDL is generated before the document using XSD to define the Web Service Order List\_schmea.xsd information in the data type. XSD document defines a complex data type to represent XML OrderList data class implementation, using custom XML elements to describe the data types refer to this definition. That the data type definitions and WSDL service document separately, you can create a reusable XML schema definition documents. Because this uses the XML technologies, the Web service can be a simple way to transfer complex data. Both the communication can be resolved under the premise of XML documents using XML wealth of information skills, direct transfer XML documents. This approach is called document-oriented approach. The definition of WSDL, SOAP binding for HTTP transport protocol to call, to develop methods for the tpc style.

At this point the contents of WSDL binding document is basically realized in the use of WSDL implementation document OrderListReport\_Interface.wsdl binding document WSDL import element.

### *D. The Client Access Layer*

SOAP server and service descriptions need solve the SOAP-based Web client, which is described in the previous three characters in the Web Service framework for the service requester. The customer access layer is to achieve a number of webs, for electronic transaction management system through their browser to interact with services, electronic transaction management system can also be familiar with any service description language to write your own based on access to programs and services to customers interact [4].

We know that the service is to implement business logic layer from the service implementation layer. In the client code, you need to call the SOAP message and process the returned SOAP message. The code is encapsulated in Order Proxy class SOAP objects. The display web includes the login web, entry web, and they is released by using the JSP.

## **4. Conclusion**

This system is used the Windows Server 2003 as operating system and the SQL Server 2005 database system. The programming Language is C # with the Microsoft Visual Studio 2008. The main technologies used in

Asp.net, Web service, SQL Server database and Asp.net Script scripting language in the system design and development process. The main difficulty is the definition of service capabilities in research and development process. The implement principles is loose coupling, and avoiding cross services, and it can not be changed after the release of requested service. Because once the release method to be modified, the changes will result in a series called chain reaction. It must be less change when defined in function to the principle of Web Service's function method.

The paper character is that all the operation, such as read data, write data, is realized by the Web Service in the system as B2B electronic trading platform of services. The Web Service technology is achieved with C# by using visual studio automatically generates WSDL description. And it defines the type implements of the iserializable interfaces, such as the data table and so on.

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