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Design and implementation of graduate employment website of process-oriented service

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ABSTRACT

Based on ASP.NET technology, this paper designs and implements graduate employment website of process-oriented service. This website provides not only an auxiliary test to verify the authenticity of information filled by graduates according to their major, but also the on-line data analysis for graduates' employment and s' recruitment information to build an information communication and decision support platform for graduates and enterprises.

KEYWORDS

ASP.NET; Data analysis; Employment website; Graduate; Auxiliary test.

INTRODUCTION

Over the years, the national and local governments, society and colleges are very concerned about graduate employment as well as its level and rate. With the continuous expansion of the reform of higher education and college recruitment, the situation of graduate employment increasingly becomes worse and worse[1]. In the job-hunting process, grasping correct and effective information means more and better employment opportunities. In contrast, lack of information or not utilizing information in time will miss the boat[2].

With the rapid development of Internet, computer and information technology in recent years, a variety of graduate employment websites emerge in an endless stream[3]. Because graduates generally have great ability to accept and master information technology, these websites gradually become a popular way to find job and provide information communication platform for graduates ands[4]. However, the traditional websites which just simply collect and post employment information can't verify and deeply mine these information. Therefore, it is of great significance if there is a website achieving information communication between graduates and s and solving the limitations of time, space and information delay in traditional job-hunting methods[5].

Based on Power Designer, Microsoft SQL Server 2005 and Microsoft Visual Studio 2005, and combining ASP.NET technology and C# language, this paper designs and implements the graduate employment website of process-oriented service. The website not only has some traditional functions for instance, collecting and posting information, sending vitae and so on, but also provides an auxiliary test to verify the authenticity of information filled by graduates according to their major and on-line data analysis for graduates' employment and recruitment information, more intuitively and effectively helping graduate employment and recruitment.

DEVELOPMENT TOOLS

ASP.NET Technology

ASP.NET developed by Microsoft is a server-side script technology which makes scripts embedded in web pages be executed by server in the Internet, and applications of Active Server Pages running on IIS[6]. The websites or applications based on ASP.NET are typically developed by Visual Studio which is a Microsoft's IDE (Integrated Development Environment) product[7]. ASP.NET can use various object-oriented programming languages to write control logic, such as Visual C#, Visual J#, etc.[8].

In the latest Web Form programming model of ASP.NET technology, the bottom system can automatically complete complicated interaction between client and server, and provide the function of managing states which can automatically maintain data between different page requests. When developing web pages, a lot of server controls can be used, including HML Server Controls and Web Form Server Controls which support data binding thus make simple codes very powerful[9]. In the web pages based on ASP.NET technology, the displaying portion and control logic can be respectively saved in.aspx file and.cs file, which not only achieves the separation of displaying portion and control logic, but also greatly improves the maintainability of web applications[10].

Microsoft Visual Studio 2005

Microsoft Visual Studio 2005 (VS 2005) is the series products of the development kit of Microsoft and a complete development tool set, including most of the tools needed for the whole design of software, such as UML tools, code management tools, integrated development environment (IDE) etc.[11]. The code written by it can apply to all platforms supported by Microsoft, including Microsoft Windows, Windows Mobile, Windows CE,.NET Framework, .NET Compact Framework and Microsoft Silverlight.

Microsoft SQL Server 2005

Microsoft SQL Server 2005 which is a relational database management system is a comprehensive database platform, using the integrated business intelligence (BI) tools for data management[12]. It was originally developed by Microsoft Sybase and Ashton-Tate, and in 1988 the first OS/2 version was launched. After launching the Windows NT, Microsoft parted company with Sybase in the development of SQL Server. Then Microsoft transplanted SQL Server to Windows NT system, and focused on the development and promotion of SQL Server Windows NT version.

Microsoft SQL Server 2005 database engine provides a more secure and reliable storage function for relational data and structured data, which makes it available for users to build and manage high availability and high performance data applications in the business[13].

Microsoft SQL Server 2005 data engine is the core of the data management solution of enterprises. In addition, Microsoft SQL Server 2005 combines with the analysis, report, integrated and notification function, making enterprises build and deploy cost-effective BI solutions and apply data to each field through the score card, Dashboard, Web services and mobile devices.

Power Designer

Power Designer which is the CASE tool set of Sybase, applying in almost the whole design process of the database model. It contains an intuitive graphical interface and extensible object-oriented programming language: PowerScript, provides a popular interface with large database, and is connected with single database through ODBC.

In addition, it is designed entirely in accordance with the C/S and supports the object oriented technology and graphical application development environment[14].

Power Designer is the front-end development tools of developing database. Users can use it easily to analysis and design the management information systems, including designing the data flow diagram, the concept of data model, the oriented object model, and the physical data model, make and control the structure model for data warehouse and work with many popular software development tools, such as Power Builder, Delphi, VB and so on, making the development time shorter and the system design more optimized[15].

Power designer is a powerful and commonly used database modeling tool by developers in the design process of the database. It can be used to design the database from the two levels: the conceptual data model (CDM) and physical data model (PDM).

WEBSITE DESIGN

Network Architecture Design

Network architecture of the website in this paper uses B/S model. B is browser and S is server which consists of web server and database[16]. Graduates and s can access this website through the browsers in the computers wherever they are. The network architecture design of this website is shown in Figure 1.

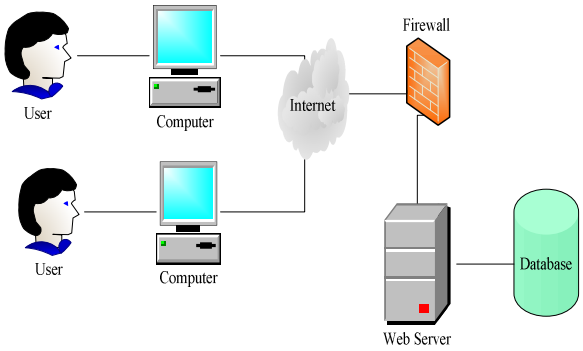

Figure 1 : Network architecture design

Functional Structure Design

This website mainly serves graduates and s so its functional structure can be divided into three parts including graduate employment, recruitment and comprehensive service. The functional structure design of this website is shown in Figure 2.

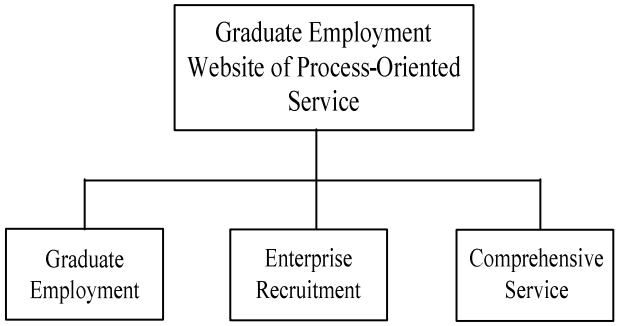

Figure 2 : Functional structure design

Graduate Employment Design

In the part of graduate employment, graduates can input personal information to register an account, input username and password to log in this website, update information, complete auxiliary test, query and browse s' recruitment information, browse the result of on-line data analysis of employment and recruitment information as well as generate and send personal vitae. The graduate employment design of this website is shown in Figure 3.

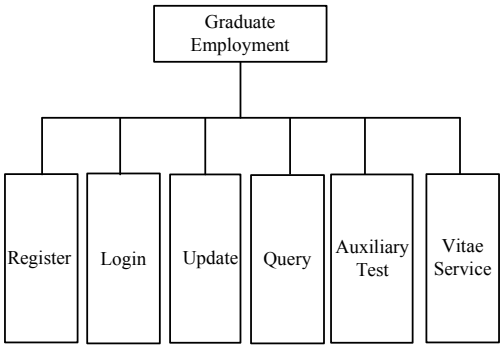

Figure 3 : Graduate employment design

Recruitment Design

In the part of recruitment, s can input basic information to register an account, input username and password to log in the website, update information, query and browse graduates' employment information, and browse the result of on-line data analysis of employment and recruitment information. The recruitment design of this website is shown in Figure 4.

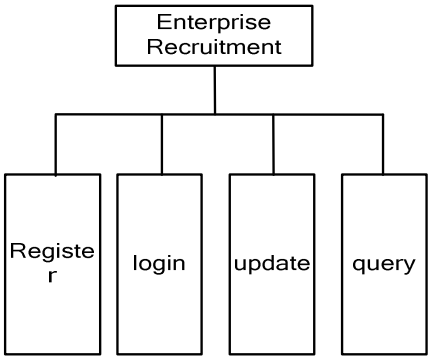

Figure 4 : Recruitment design

Comprehensive Service Design

The comprehensive service mainly includes data maintenance and data analysis. This website supports on-line data analysis for graduates' employment information and s' recruitment information, more intuitively and effectively helping graduate employment and recruitment. The comprehensive service design of this website is shown in Figure 5.

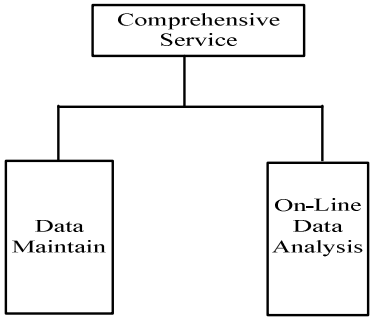

Figure 5 : Comprehensive service design

Database Design

The website in this paper mainly involves two aspects of data processing: graduate employment and recruitment. The data of graduate employment includes personal information, employment information, college information, major information, subject information, and auxiliary test information. The data of recruitment consists of information, recruitment information, industry information, and type information.

In order to more accurately and completely reflect the data processing and relationship of the website, this paper designs the database model by Power Designer and then builds database by Microsoft SQL Server 2005. Power Designer can generate three models: Conceptual Data Model (CDM), Oriented Object Model (OOM), and Physical

Data Model (PDM)[17]. In addition, Power Designer can directly convert PDM to a sql file based on Microsoft SQL Server 2005. Eventually, the sql file is executed to build the database in Microsoft SQL Server 2005 [18]. The PDM design of this website is shown in Figure 6.

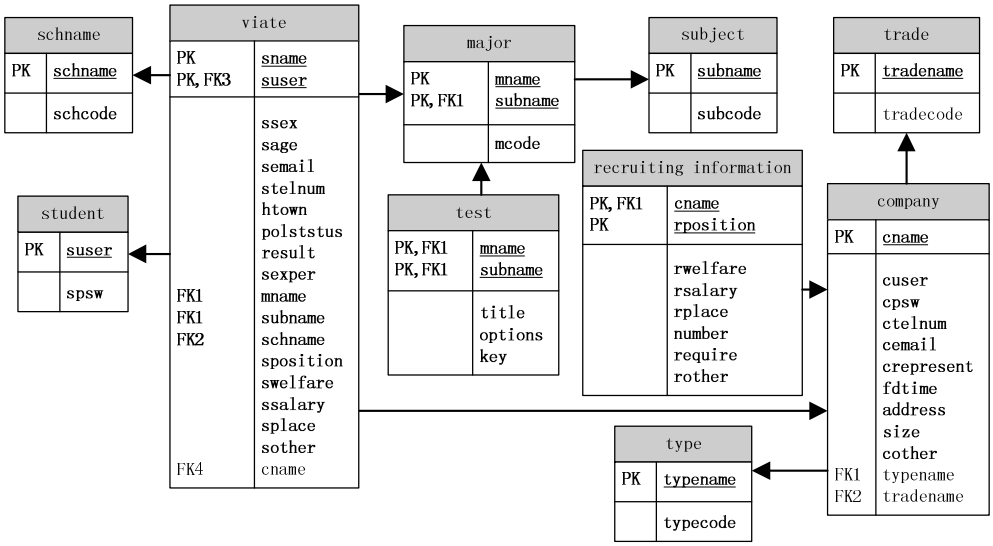

Figure 6 : PDM design

KEY TECHNOLOGIES

Auxiliary Test

After registering in the website, graduates can enter the page of selecting test to select the type of test through their subjects and majors. Graduates must select the same subject and major as what they input in the registering page otherwise they can't enter the page of auxiliary test and a warning dialog will pop up to remind them to select correct type of the subjects and majors. The page of selecting test is shown in Figure 7.

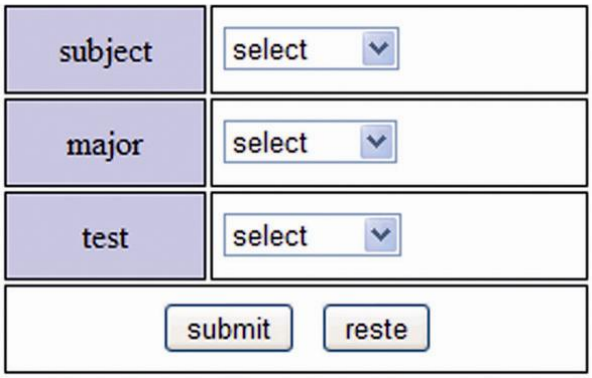

Figure 7 : The page of selecting test

This website provides five different tests for every major and each graduate can choose one test from them. All tests aim to examine comprehensive knowledge in relevant major and verify the authenticity of information filled by graduates in the registering page. According to the result of the auxiliary test, the website can evaluate the major quality and ability of graduates. The C# code about testing and evaluating is as follow.

```
String [] key=new String[10];
static String zymc;
protected void Page_Load(object sender, EventArgs e)
{
xueke.Items.Add("select");
if (IsPostBack)
return;
String sqlstr = "server=HBKJDX-704E75FF; Integrated Security=true;database=student_employ";
SqlConnection sqlcon = new SqlConnection(sqlstr);
```

```
sqlcon.Open();
String selstr = "select subname from subject";
String selstr2 = "select mname,result from viate where suser='"+Session["name"].ToString()+"'";
SqlCommand selcmd2 = new SqlCommand(selstr2,sqlcon);
SqlDataReader myReader = selcmd2.ExecuteReader();
String pjjg = "";
while(myReader.Read()){
zymc = myReader[0].ToString();
pjjg=myReader[1].ToString();
}
if(pjjg!="")
{
String str = "<script language=\"jscript\">confirm(\"Sorry,you have ever completed the test!\")</script>";
Response.Write(str);
xueke.Enabled = false;
zhuanye.Enabled = false;
shiti.Enabled = false;
sub.Enabled = false;
reset.Enabled = false;
}
myReader.Close();
SqlCommand selcmd = new SqlCommand(selstr,sqlcon);
selcmd.CommandType = CommandType.Text;
SqlDataAdapter da = new SqlDataAdapter();
da.SelectCommand = selcmd;
selcmd.ExecuteNonQuery();
DataSet ds = new DataSet();
da.Fill(ds, "subject");
xueke.DataTextField = "subname";
xueke.DataSource = ds.Tables["subject"].DefaultView;
xueke.DataBind();
zy(xueke.SelectedValue);
sqlcon.Close();
}
private void zy(String xkm)
{
String sqlstr = "server=HBKJDX-704E75FF; Integrated Security=true;database=student_employ";
SqlConnection sqlcon = new SqlConnection(sqlstr);
sqlcon.Open();
String str = "select mname from major where subname='"+xkm+"'";
SqlCommand selcmd = new SqlCommand (str,sqlcon);
selcmd.CommandType = CommandType.Text;
SqlDataAdapter da = new SqlDataAdapter();
da.SelectCommand = selcmd;
selcmd.ExecuteNonQuery();
DataSet ds = new DataSet();
da.Fill(ds,"subject");
zhuanye.DataTextField = "subname";
zhuanye.DataSource = ds.Tables["subject"]. DefaultView;
zhuanye.DataBind();
sqlcon.Close();
}
protected void xueke_SelectedIndexChanged(object sender, EventArgs e)
{
DropDownList ddl = (DropDownList)sender;
String xkm = ddl.SelectedValue;
zy(xkm);
}
protected void sub_Click(object sender, EventArgs e)
{
if (zymc != zhuanye.SelectedItem.Text)
```

```
{
String str = "<script language=\"jscript\">confirm (\"Sorry,your choice is inconsistent with your major,please again!\")</script>";
Response.Write(str);
}
else
{
String s = zhuanye.SelectedItem.Text.Trim() + shiti.SelectedItem.Text.Trim();
Response.Redirect("~/" + s + ".aspx");
}
}
protected void Page_Load (object sender, EventArgs e)
{
String sqlstr = "server=SICHUAND-721D75;
Integrated Security=true; database=student_employ";
SqlConnection sqlcon = new SqlConnection (sqlstr);
sqlcon.Open ();
String selstr = "select * from test where test type ='"+Session ["major"]. ToString () + "'";
SqlCommand selcmd = new SqlCommand (selstr, sqlcon);
SqlDataAdapter da = new SqlDataAdapter ();
da.SelectCommand = selcmd;
DataSet ds = new DataSet ();
da.Fill (ds, "test");
DataTable ta = ds.Tables ["test"];
Console.WriteLine ("<table>");
Console.WriteLine ("<tr><td>" + Session ["major"].ToString () + Session ["test number"].ToString() + "</td></tr>");
Console.WriteLine ("<tr><td>title number</td>");
Console.WriteLine ("<td>title</td>");
Console.WriteLine ("<td>options</td>");
Console.WriteLine ("<td>key</td></tr>");
for (int i = 0; i < 10; i++)
{
Random ra = new Random ();
int num = ra. Next (1,100);
key [0] = ta. Rows [num][2].ToString();
Console.WriteLine ("<tr><td>"+ i +"</td>");
Console.WriteLine ("<td>" + ta. Rows [num][1] + "</td>");
Console.WriteLine ("<td>A." + ta. Rows [num][3] + "B." + ta. Rows [num][4] + "C." + ta. Rows [num][5] + "D." + ta. Rows [num][6] + "</td>");
Console.WriteLine ("<td><asp: DropDownList runat = '\"server'\">");
Console.WriteLine ("<asp: ListItem> please select </asp: ListItem>");
Console.WriteLine ("<asp: ListItem> A </asp: ListItem>");
Console.WriteLine ("<asp: ListItem> B </asp: ListItem>");
Console.WriteLine ("<asp: ListItem> C </asp: ListItem>");
Console.WriteLine ("<asp: ListItem> D </asp: ListItem>" + "</asp: DropDownList></td></tr>");
}
Console.WriteLine ("<tr><td><asp: Button ID = '\"sub'\" runat = '\"server'\" Text = '\"submit'\" OnClick = '\"submit_Click'\" />");
Console.WriteLine("<asp: Button ID = '\"res'\" runat = '\"server'\" Text = '\"reset'\" OnClick = '\"reset_Click'\" /></td></tr>");
}
protected void submit_Click (object sender, EventArgs e)
{
int score = 0;
String pingjia="";
For (int i = 0; i<10; i++)
{
if (DropDownListi. SelectedItems. ToString == key [i])
score = score + 10;
}
if (score < 60)
```

```
pingjia = "The quality and ability of this graduate is very poor in " + Session["major"].ToString();
else if(score>=60 && score<80)
pingjia=" The quality and ability of this graduate is just up to standard in " + Session["major"].ToString();
else if(score>=80 && score<90)
pingjia=" The quality and ability of this graduate is good in " + Session["major"].ToString();
else
pingjia=" The quality and ability of this graduate is excellent in " + Session["major"].ToString();
}
protected void res_Click(object sender, EventArgs e)
{
DropDownListi. SelectedIndex== 0;
}
```

Statistics and Analysis of employment data

Through the Crystal Reports in Microsoft Visual Studio 2005, this website supports statistics and on-line data analysis for employment and recruitment information to mine valuable rules and information to help graduate employment and recruitment. The reports include analysis of work place of graduate employment, analysis of salary scope of recruitment, analysis of salary scope of graduate employment in one city, analysis of job type of graduate employment, etc. Some reports are shown in Figure 8 and Figure 9.

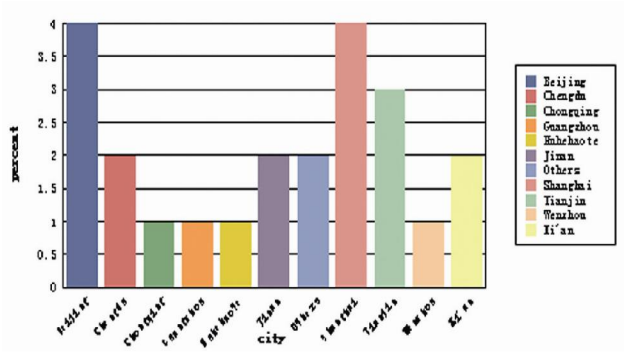

Figure 8 : Analysis of work place of graduate employment

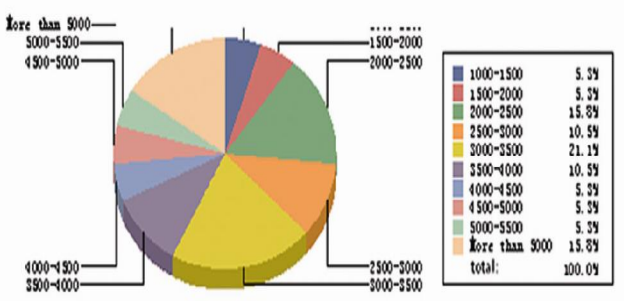

Figure 9 :The analysis of salary range of recruitment

CONCLUSIONS

The design and development of this website solves the limitations of time, space and information delay in traditional recruitment interview model and problems that graduates can freely fill their vitae with personal and major information and employment data which are just simply collected and posted in traditional employment websites. Providing an auxiliary test and on-line data analysis, this website not only provides pre-evaluation of graduates to s, but also builds an information communication and decision support platform for graduates and s. As a result, the graduate employment website of process-oriented service will have a good prospect of application.

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