Study of Research Information Management System based on Sports

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Abstract. Aims at the lacking of our research information management in the sports, we design the system of research information management in order to solve this problem. This article first analyzes the system, describes the evaluation of system process and requirement. Then, we can find the detailed analysis of the system design principle and system structure. At last, this paper provides parts of the source code that can realize this system. This article provides positive function to the sports managers and researchers.

Introduction

With the development of competitive sports and information technology, scientific training obtains more and more attention. Everyone has the different physiological function and the training volume influences the training effect. Scientific and reasonable training can excavate the max potential of the athletics and improve their performance. Based on the competitive sports development, it is very important to support scientific research management system to the coach, athletes, administrative staff and researchers for monitoring the athletes' physical signs[1].

System analysis

System process analysis. System design requires the understanding of system structure, holding the knowledge of system structure and the internal relationship. General Administration of Sport design and manage the scientific information management based on the sports. Moreover, it controls a number of training department and scientific research institution. The scientific research institution service the training department, support the sampling of relative physical signs, biochemical criterion, and property index. Moreover, it will analyze the athlete condition on the different periods and provides reliable data and the basis for the scientific research[2].

System requirement analysis. General Administration of Sport needs to control different departments. The objective evaluation and management of each department requires a mass of data as well as how to guide the department to correctly evaluate training effect. For a long time, the sports management department use paper materials to record the data. Throughout the years, we need to pay a lot of people and money on the evaluation of the enormous information content. Use the scientific information management system to do the effective statistic and analysis can find out some regular patterns that support the scientific basis for the coaching team, administrative workers and the athletes. It will help the team to select the right answer while making decisions and research[3].

Functional requirement. System functions have: user management, athlete information management, basis management, sports projects management, physical signs management and the biochemical criterion management.

The users include: administrator, domestic consumer, operator, and the administrative department head. The administrator has the highest permission that can check, modify, delete, and change other users' permission in the database. Domestic user (coach) can only modify the personal information and check the relative data within the permission. The operator can input and change the data. Moreover, the head of administrative department can check the data and information within the permission. The detailed functional structure is in figure 1[4].

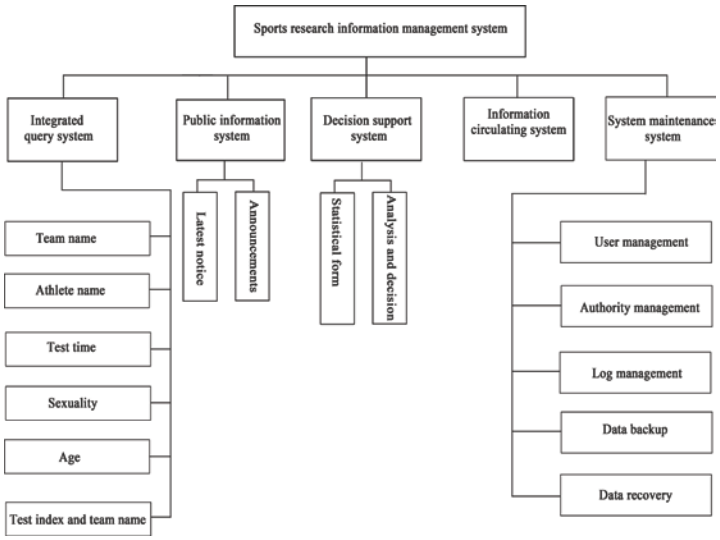

Figure 1. System functional chart

Network structure requirement analysis. This article designs the system based on B/S structure. Reasonable database management system and system structure can protect the security of system data. This system includes too many departments with wide regions. It is unpractical to user the local area network. The internet is necessary.

Network structure requires network security, system reliability, and data integrity. Network security means using antivirus and firewall to resist Hacker and virus. System breakdown cannot over three times a year, which is caused by the network equipment failure and cannot exceed 20 minutes. System reliability means effective database backup. If we need to transfer the data, we can return to work on the new equipment on time. Data integrity means data storage. All the data will put in the database server. However, the hardware capacity is limited. When it's beyond the capacity, it will have data flooding, and crash the whole system. Some data require long term storage and some will be shorter. We can base on the data size to manage the database through manual operation and automatic method in the periodicity time. It will avoid data lost.

System design principle and system structure

System design principle. The design principle of scientific information systems is: effectively integrating the current sport information resources and intensify the resource management, staff management and decision support management. Moreover, research department develops the support of Frontline training departments.

Integral system planning. The statistical query includes: athlete affiliation, name, age, test time, property index, team information and other resources.

Intensify the informatization support that supported by the decision. The head of administrative department support requirement and index for the training department. They need to make a comprehensive analysis about the athlete through computer software, and the network support. Then, the system will provide the reasonable opinion and decrease the working strength of the managers.

Convenient for the users to access system. The system depends on the internet. The staff from different levels can query the resources in front of the computer that connect to the network.

Operation simplification and user interface briefness. Most of the users are not the professional computer workers. The interface and operation process should be as simple as possible.

Using advanced and reliable technology to protect system stability. The system requires long term investigation and maintenance. The advance technology can protect system benefit and convenience for further perfection and extension.

Based on the above points, the development platform of this system is .NET and is combined with SQL Server database technology. Use B/S structure to design the scientific information management

system, the users can access the system through a browser and avoid client installation and incompatible problems.

System structure. The system in this article uses NET platform that's based on the C# language of ASP.NET. The system structure is figure 2.

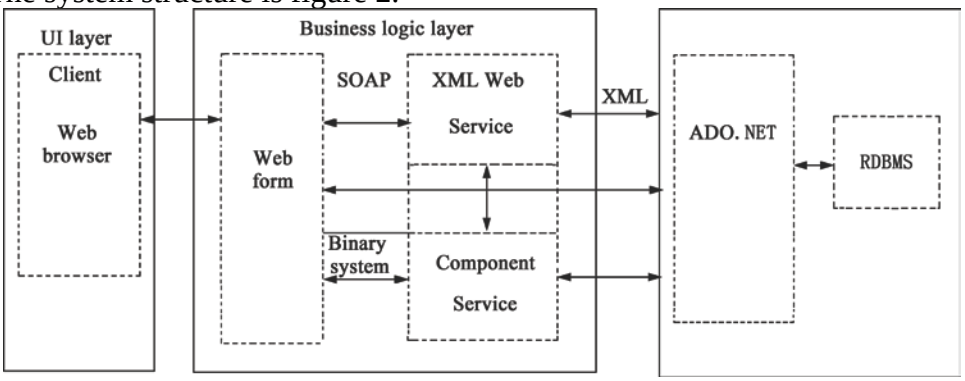

Figure 2. System structure

As the above figure shown, the whole system combines with UI layer, business logic layer, and data layer. Business layer places in the middle of the system. It can interact with the UI layer through WEB form and use the XML service to communicate with the data layer.

System realization

Users can login at the different location. If the user did not log out, he/she cannot log in at other places in order to avoid data errors. The detailed codes are in the following:

```
name = this.txtName.Text;
    pass = this.txtPass.Text;
    passQuestion = this.txtPassQuestion.Text;
    passSolution = this.txtPassSolution.Text;
    string QySql = "select * from tb_User where UserName='" + name + "'";
    string GrSql = "select * from tb_GrUser where Name='" + name + "'";
    if (loginType == 0)
    {
       if (!dataOperate.seleSQL(GrSql))
       {
          pelDaohan.Visible = false;
          pelBase.Visible = false;
          pelQyInfo.Visible = false;
          pelGrInfo.Visible = true;
       }
        else
      RegisterStartupScript("false", "<script>alert(' Sorry, this user has logged on. ')</script>");
     }
     else
     {
        if (!dataOperate.seleSQL(QySql))
         {
            pelDaohan.Visible = false;
            pelBase.Visible = false;
            pelQyInfo.Visible = true;
            pelGrInfo.Visible = false;
         }
         else
```

```
RegisterStartupScript("false", "<script>alert(' User name already exists ')</script>");
}
```

The whole system support helps to the scientific research. The data, information query is necessary. Based on the various records, we need to use fuzzy query. The core codes are in the following:

```
string table = ddlSearchType.SelectedValue.ToString();
    string keyType = ddlKeyType.SelectedValue.ToString();
    string keys = txtKey.Text;
    string sql;
    if (txtTerminal.Text != "")
    {
        sql = "select * from " + table + " where " + keyType + " like '%" + keys + "%' and
terminal like '%" + txtTerminal.Text + "%'";
    }
    else
    {
sql = "select * from " + table + " where " + keyType + " like '%" + keys + "%'";
    }
    Session["searchSql"] = sql;
    Session["searchType"] = ddlSearchType.SelectedValue.ToString();
    Response.Redirect("searchList.aspx");
```

Summary

This article researches the sports research information management system. Although China is a great sporting nation, it is not sporting powers. Based on the scientific management and training, we can improve our sports level. We can even closing the national distance on some projects. For the article length limitation, the designed system in this paper did not support the relative data evaluation. The interested readers can research more and the discussion will be welcomed.

References

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