

Design and Development of “China Well Logging Network” Website Based on B/S Structure

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Abstract:-China Well Logging Network is a professional website on well logging subject designed and developed by Nuclear Magnetic Resonance (NMR) Imaging Laboratory of Research Center of Borehole Geophysics in China University of Petroleum (Beijing). The intentions of the website are to spread the well logging knowledge, promote the well logging subject and offer a platform with well logging information query service and communication each other for teacher, researcher, student, enterprise and the public. Based on the practice of the website development in the paper, we analyze the characteristic of B/S structure, synthetically depict the idea and development tool and software. The function layout, models design, website management, maintenance and security are all discussed

Keywords:-B/S structure, China Well Logging Network, website, design and development

I. INTRODUCTION

The world has enter the Internet age in 21st century. Internet has already penetrated into many areas, even the daily lives of every ordinary people. The application of the Internet makes many traditional industries burst out new vitality, and impact on people's daily work and lifestyle more and more increasingly. In a few short years, the Internet has evolved into the fourth communication media after television, newspapers, radio media, the latecomer surpass the formers, and became the world's largest information communication media. Network technology has become the basis of the progress and development of various industries increasingly, collection and dissemination of information on the Internet has already more and more attention from people. How to take advantage of the new media of the Internet for their professional services is the topic that many people have been discussing. At present, the developing countries abroad, major research institutions, enterprises, organizations have already utilize the convenience and quick advantage of the Internet, established service for their professional website, and development of domestic professional website has only just started [1].

“Chinese logging ” it is in this background, to popular logging professional knowledge, to promote the development of logging professional, and for the vast number of education and scientific research workers provide service for logging information query and communication platform for guiding ideology, by teachers and students of China University of Petroleum NMR laboratory work together development and construction. This article describes the development mode and main content of the site.

II. BROWSER / SERVER MODE THREE-TIER ARCHITECTURE

A. Three-tier B / S structure

Browser / Server model of the three-tier architecture is developed from the original Client / Server 2-layer structure, to avoid access bottlenecks, improve system scalability, security and reusability, the structure shown in Figure 1.



Figure 1 three- tier B / S model

B. Three-tier B / S structure works

The three-tier B / S structure model is a state-of-the-art collaborative application development model, this three-layer model of the server-side further decomposed into an application server (Web server) and a database server. Users enter information on the browser side, Web server based on the user information received from the browser to the database server queries and query results are returned to the browser, the user feedback information from the browser; database server mainly completes definition, query and update operation of the data, and maintain the security and integrity of the data[2].

C. The advantages of the three-tier B / S structure

By using a three-tier structure of the program, can more quickly than traditional developed two layer structure efficiency higher web database applications, but also to client computer hardware and software configuration request is not high, for the user does not require for special computer and software training[3]. Compared to three- tier B / S structure and the second floor of the C / S structure, advantages mainly in: (a) High efficiency, and reduce the burden on the client to the

application server, and also reduce the consideration of the connection with the database server; (b) Easy to maintain, when application logic changes, just need modify the application server, to improve the maintainability and enhance the consistency of the data; (c) Scalability, emphasized by the three-layer structure is a logical sense rather than a physical meaning, it describes how to design applications, rather than how specific deployment; (d) Eliminating database bottlenecks. When the application server becomes a bottleneck, can any increase the number of application servers, and services to end customers by more than one application server, load balancing, while improving system overall reliability; (e) Improve system security, users can not directly operate the server in the three-tier structure, but only on the browser, thereby enhancing the security of the system.

III. THE CHOICE OF DEVELOPMENT TOOLS

A. Web authoring tool

Dreamweaver is a product of the Macromedia company, is a page editing tools of what you see is what you get, or web publishing software, it is a popular web authoring software at present, its powerful functionality and combine with Macromedia introduced Flash (animation software) and Firework (image processing software), can create beautiful, full of dynamic web pages.

B. Server-side technology

Server system software uses the Microsoft Windows 2000Server, configuration Server, IIS, ODBC Driver & Administration and related aids. Generate dynamic web pages using ASP (Active Server Pages) technology, which Microsoft launched a high-performance web application development technology, and its essence is a server-side scripting language that runs it is fully integrated with the ADO provides a powerful database access functions [4]. ASP belongs to the ActiveX server-side technology, and usually client realize dynamic homepage technology is different, ASP command and scripts are in the server explain implementation, sent to the browser's just standard HTML page, developers don't need to consider the browser's type, also don't have to consider whether to support ASP browser. Do not see the ASP source code in the browser side, so the security of the program can be guaranteed [5].

C. Back-end database

Access database of Microsoft company as its easy-to-use, affordable, has good compatibility and the same for the company's products the Windows 2000Server and ASP[6], so often used in small and medium-sized website development, "Chinese logging " also choose this software as its database

D. Database connection technology

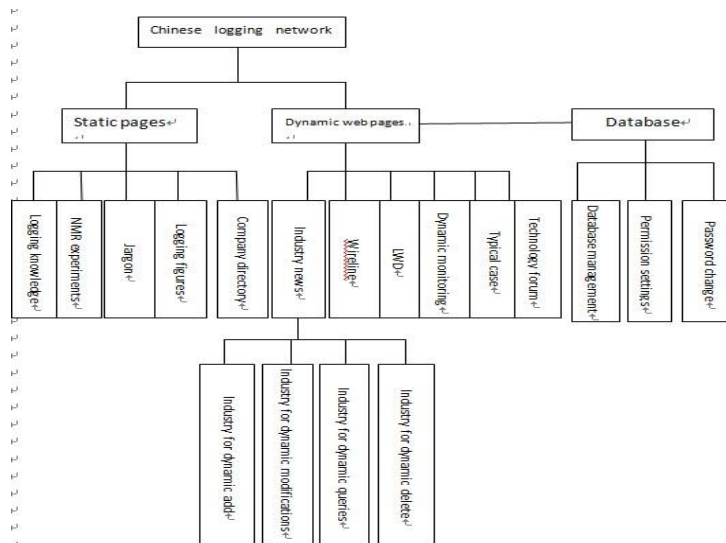
Access database support ODBC (Open Database Connectivity), so you can establish a connection through ODBC databases using ADO technology combined with Microsoft's launch of the high-performance web application development technology ASP access to the database, such as the use of the ASP statement:

```
Setconn = Server.Createobject ("ADODB.Connection")
conn.open "DSN = mydsn";
```

And then use SQL statements can be achieved on the data source named mydsn database query, add, update, or delete records.

IV. THE MAIN FUNCTION OF THE SITE DESIGN

The design structure of "Chinese logging" is divided into three blocks: the static part of the page, the dynamic part of the page and the database (Figure 2), those three blocks as a two page. Website take template style, page style uniform, clear structure, clear priorities and easy to use.



A. The part of static page

The part of static page include six two-pages, they are:

Logging knowledge: Introduce the knowledge of logging-related, such as the development history of logging and characteristics of the industry.

NMR experiments: Introduction the development of magnetic resonance imaging laboratory of the Logging Research Center of China University of Petroleum (Beijing), as well as the latest results of the laboratory in NMR logging applications in basic theoretical research, experimental research, instrument research and applied research. Jargon: logging-related jargon and the meaning of jargon, including Chinese and English, for the technical staff query. Logging People: Introduce researchers of domestic logging industry, as well as the research work being carried out. Company Directory: Introduce the main logging enterprises, as well as the state of the enterprises.

About Us: To introduce Chinese petroleum university (Beijing) logging the overall condition of the magnetic resonance imaging laboratory, the basic situation of the team members, contact way and so on. As a result of the template approach, entire page form change little, just the contents is different.

The jargon explained including English-English and English-Chinese two forms interpretation, and sort according to the letters of the alphabet, using Dreamweaver's localization and relevant link function to achieve "jargon" rapidly search. "Jargon" will be the transition to a dynamic part of the page, achieve the link with the database to enhance its flexibility and better service for logging people.

B. Dynamic web part

The dynamic part of page include six two-pages, they are:

(a) Industry News: scroll through the release of the latest technical information about logging, information of the professional and technical conference, technical reviews, forecasting trend of technical development, divided into two aspects of the technical and non-technical.

(b) Wireline logging: Introduce the basic principles of the various methods of wireline logging, main logging tools, as well as the main explanation of methods and geological applications. The main contents include:

The Electrical Logging: spontaneous potential logging, ordinary resistivity logging, standard logging, lateral logging, microelectrode logging; laterolog, three-electrode laterolog, seven electrode laterolog, bilateral logging, microlaterolog, neighboring laterolog microspheres, microspheres focusing logging, resistivity logging method combination; induction logging, conventional induction logging, array induction logging; electromagnetic wave propagation logging, ordinary electromagnetic waves dissemination of logging; array of electromagnetic wave propagation logging; imaging logging, microresistivity scan and so on.

Acoustic logging: acoustic velocity logging; sonic amplitude logging, acoustic amplitude logging, acoustic variable density logging; full acoustic logging; the sonic underground television; dipole shear wave logging; multipole sonic logging; sound imaging logging.

Logging of nuclear radiation: gamma ray log, natural gamma ray logging, natural gamma ray spectral logging, the formation density logging, lithology density logs, radioisotope tracer logging; neutron logging, epithermal neutron logging, thermal neutron logging, neutron gamma logging, pulsed neutron gamma spectroscopy logging, neutron lifetime logging, activation logging and so on.

NMR logging: NMR logging, downhole fluid laboratory and so on. Other wireline methods: caliper logging; temperature logging; production logging.

(c) LWD: to introduce LWD related theory, methods, instruments and the main application. Including electrical method, sound waves, nuclear radiation, and nuclear magnetic resonance methods.

(d)Dynamic monitoring: Introduce the theory, methods, equipment and major applications of the formation testing and downhole permanent sensors.

(e)Typical case: Introduce the application of oil and gas exploration and development in the process to have wide application value, can provide reference for well logging interpretation of the typical logging application instance, so that it can inspired from a classic case.

(f) Technical forum: to provide professional and technical personnel for technical exchange platform.

C. Database section.

Microsoft Access 32 Microsoft launched the relational database management system (RDBMS), developed with Microsoft's other software interface style is consistent and strong compatibility between, you can import data from Excel or Word document [4]. It features fully object-oriented, event-driven mechanism to support multimedia applications, either in a single-user environment can also work in a multi-user environment, and security management mechanism. It built a lot of functions, and provides a number of macro operation, more convenient, flexible database application development. Access characteristics and our own situation, we chose Access as the site's back-end database field "ID" as the primary key to uniquely identify each "Industry News; the field "NTitle" is the title of the " Industry News "size of 50 characters, so the maximum allowable title to 25 characters; the field "NType" is a type of "industry News", in order to "industry News" statistical divided into two type of technology and non-technology type; fields "NDate" each "industry News" published, can use this field to sort on the "News"; body content of the field "NText" is the "industry News", as shown in table 1.

Table 1 With "industry News" as an example, built the "industry dynamic" data table

Field Name	Data Types	Description
ID	Digital	Number
NTitle	Text	Title
NType	Text	Type
NDate	Date	Release Date
NText	Remark	Content

In page design, "wireline", "LWD logging" and "dynamic monitoring" is separate, in order to facilitate database queries and to facilitate the management, we adopt hierarchical type way to create a 1-4 level 4 table, and established relationships by use of the correlation between them. Based on the same consideration we created as "a typical case of" 1-3 level 3 table. These data table plus the administrator tables and Technical Forum 2 Data Table ("Author table" and "Post table") together constitute the "Chinese logging "database.

D. Other.

As the scan logging graphs is a large amount of data, not suitable for database management, so we have established a file folder to store scanned image files, direct access to the image files do hypertext links. Other website folder including images folder store website page graphics; Photos folder storage site content graphics; Admin folder store manage files; the DOCS folder to store all relevant websites documentation.

V. CONCLUSIONS

The building of "Chinese logging" is in its infancy, a lot of function is not perfect. In addition to the future direction of our efforts is to improve the existing functionality, but also the development of new features such as online technical support, software downloads. Along with the development of the network, the future must be introduce streaming media technology to realize visualization, let logging experts through this website, never leave home command, monitoring logging site operation and accomplish data processing in real time. We will make unremitting efforts to construct "China logging network", and make it become the largest and the best professional sites of the logging.

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