

The Design of Scientific Research Project Management System in Universities

SUN Shuyan^{[a],*}; QI XiaoJuan^[a]; YANG YongJi^[b]

^[a]Changchun University of Science and Technology, China.

^[b]Changchun University, China.

*Corresponding author.

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Abstract

Researching and designing the university scientific research project management system based on network is conducive to tracking, guiding and managing product life-cycle of the whole research procedure management of projects. It also can provide information support for the managers to make scientific research management decisions and contribute to advancing the management level of scientific research and management. Fully understanding the procedure of scientific research management system, the paper researched problems which are important to project management and designed the basic structure of the scientific research management system according to the manager's demands. Adopting Myeclipse, Tomcat, Mysql development tools, the function models such as information publishment, achievement exhibition, project management and academic communication can be constructed. Therefore the goal of all-dimensional management of progress, resources and results can be realized. It can not only facilitate project directors to do comprehensivize management of project, but also helpful for the management sector to get the advanced progress information of all the internal scientific research projects. The management system can meet the need of academic institutions macro-management and decision demand of scientific activities, providing support for the project participators' evaluation.

Key words: Scientific research project management; B/S model; MySql

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INTRODUCTION

It is an era of the world economic integration and rapid development of information technology, every institution who wants to keep advanced and further developed in the competitive world, must make effective reaction sensitively to the rapid changing environment. The application of information management system is able to provide this kind of effective decision support. Information management system is dominated by human to collect, to transfer, to process, to store, to update and to maintain information, support to decision making of high-level administration, controlling of middle-level staff to and operation basic level staff. through computer hardware, software, and network communication equipment and other office equipment, Meanwhile, information management system is also a social system, pushing forward information system like social reform, especially when the system function is largely improved and management model is greatly changed by the application of information technology, it can furthermore promote the human society progress.

At the present, with the rapid development of computer and network technology, each department is setting its own information management system. There is no exception for universities and scientific research institutions and this will be beneficial for the managers free from the cumbersome management work, making management systematic, regulative, and quickly getting useful information.

1. CURRENT PROBLEMS OF MANAGEMENT METHOD OF SCIENTIFIC RESEARCH PROJECT IN UNIVERSITIES

The management work of University scientific research project includes: declaring project, project evaluation, results management, funds management, statistical summary report management and so on. Scientific research management system can realize its function relying on publishing information, getting information and processing information.

Information transference is the process information transferring from senders to receivers. In this stage, most of universities use the modern communication methods such as network website, text message, E-mail, QQ instant messaging software, and some negative factors occur when enjoying the convenience brought by modern communication media. They include the following aspects: (a) Information fatigue: due to the simple convenience and low cost of Information transference, most information need less to transfer and can be published on the internet at any time. Group of mail, and receiving interface of instant messaging software without filtered, which causes the fatigue of relevant researchers when facing various information. (b) information invalidated: some information transferred by special medium has timeliness, for example, chat messages in the QQ group, after a limited period, this information can not be received by the receiver. And some information medium has filter function which takes a large number of sending information as junk information so rejects. All of the above may cause transfer mistakes, and affect the management processing. (c) Absence of emotional information: information transferred by the modern medium is always formalized and mechanical, information sender can not do face to face communication with the receiver understand each other's intention directly, accurately and comprehensively. Some of the implications such as emotional connotation can not be transferred to each other, which may bring not only the incomplete information but also misunderstanding, making emotional communication very difficult. It finally makes the researcher tired and rejective to process management system information.

Scientific research information processing is the procedure that scientific research manager analyzes and processes collected information and provides relevant statistical analysis results. In this processing stage, it can make a great use of computer artificial intelligence and various data mining algorithm, realizing the comprehensive, fast, and scientific information processing. This procedure shows the intelligent degree of the management system, and it is also the key point of development and design. In the information transference process, it will seriously affect the processing results if there is misunderstanding, incomplete and distortion.

2. DESIGN

The design principles of university scientific research project management system are: (i) Being humanized; (ii) being extendable; (iii) being advanced; (iv) being reliable.

The system will adopt advanced information technology and effectively combine with modern scientific research project management concept based on school scientific research management actual situation. The success of the system construction will be able to easily solve a series of traditional hard problems in the scientific research management. The breakthroughs include: (a) Open to various scientific research projects: the system is geared to the needs of the school of all scientific research project and it is open to all the teachers or students engaged in scientific research, solving the problem of system data opening to the outside world. (b) Whole solution of the scientific research management: the system proposes an overall solution containing information release, the scientific research project management, office automation and other aspects, thus it can meet the need of scientific research management in many aspects at one time. According to the needs of users, the system designs the following basic function modules:

Information release module: This module is to issue various information on school scientific research, scientific research results, and all aspects of school notice which include laboratory, key laboratory, departments, research projects, scientific research, etc. and provide real-time updates of these aspects.

Project management module: In this module, if the user wants to use this function module, he must first login, and after login he can increase, modify, and delete these things such as management methods, organization, scientific research base, scientific research, scientific and technological achievements, academic exchanges, member management, announcements, and other information. This module can provide all kinds of project information, and implement the functions of increase, cancel, modify, search and so on. It can display all kinds of project status such as: application, project approval, in-process inspection, and end, excises increase, cancellation, modification and search action for project expense.

Results exhibit modules: It includes the measures for the management of scientific and technological achievements, achievements appraisal, achievement won, current projects, etc. These directories can be dynamically increased. With each branch below is about the introduction, which can satisfy users to understand all kinds of scientific research achievements and its details.

Academic communication modules: Academic exchange is an academic exchange platform for users in which the user can publish their thesis, and discuss the theme others published, express their own viewpoints to the questions. It is a place where users can learn scientific knowledge and express their own viewpoints. This

module also can provide information such as internal and international meetings and scientific activities information.

User management module: The function modules not only can realize user registration, it can also can provide different users with different permissions.

3. DATABASE STRUCTURE DESIGN

Database is the core and foundation of information system, which can organize a large amount of information effectively according to a certain model. It can get information more convenient and fast and accurately. It is the key point of the database whether every part of information system combine with each other and how they combine. For database, reasonable logic design and physical design are necessary to develop a effective and efficient perfect information system, a reasonable database structure design can improve the efficiency of data storage and ensure data integrity and consistency. At the same time, the reasonable database structure will also be helpful for the application system, the implementation of the program.

Database design needs to synthesize archive data and data requirements from varies departments. It can analyze the relationship between the individual data and design appropriate scale and correctly reflects the relation between data. There is less data redundancy and it is able to meet the requirements of a variety of query data model. The most important step of database design is the data table definition. Data table definition refers to defining the logic structure of the data in the database table, including: the attribute name, type, representation, the default value, check rules, keywords and blank space etc. Relational database should be designed according to the relationship between standardization requirements as far as possible, but to make a high efficiency, standardization degree should be decided according to the application environment and conditions. According to user requirements, there are 16 pieces of data table in this system (typical table Table 1 and Table 2).

Table 1
Users

Field Name	US_ID	US_NAME	US_PASSWORD	US_SEX	US_IMAGE	US_BIRTHDAY	US_EMAIL	US_ISDISABLE	US_ROLE_ID
Data types	Automatic growth	varchar	varchar	char	blob	date	varchar	char	int
Explanation	Number primary key	User name	password	sex	User photo	User birthday	Email	Available or not	Character ID

Table 2
Management Methods

Field Name	ID	DOC_NAME	DOC_Contant	DOC_UP_Date	DOC_UP_Person	DOC_Status	DOC_FIRST_Title_ID	DOC_FIRST_Title_ID
Data types	Autonomous growth	varchar	varchar	date	varchar	int	int	int
Explanation	Number primary key	Method name	Constant	Update date	Update person	Method status	Method title	Update person ID

4. IMPLEMENTATION OF SYSTEM

4.1 Implementation of the Home Page

Homepage of scientific research project management website should be designed into a simple rustic style. The title bar of the page includes “Management Approach” “Structure” and “Scientific Research Base” and all of the ten functional modules.

Central page still shows the dynamic rollover images, by the "notice" and "notice" on both sides of two scroll bars. Web page bottom provides related website links. In the configuration after the relevant operating environment, in IE browser address bar, type the address can access the site.

People who view scientific research project management web site, are allowed as tourists to view the inside of the web site about the content, the person also can log in as a registered user access to more resources.

Announcement and notifications of the first page adopts MARQUEE tag of HTML, the code is as follows:

```
<MARQUEE onmouseover=this.stop()
onmouseout=this.start()
scrollAmount=1 scrollDelay=60
direction=up height=230 id="gg">
</MARQUEE>
```

In this program it adds the mouse hovering and the mouse left events for MARQUEE tags, because the announcement and notified the information is updated all the time, in order to achieve the function to access to the data the database when Page load in, design adopted on JQUERY, JSON, STRUTS combination to solve the problem.

JQuery is a set of Java script Script Library, It can help us to complete the coding logic, de even more graceful and strong. JSON (JavaScript Object Notation) is kind of light weight data exchange format, earealized

business functions. Use of jQuery can greatly improve the efficiency of writing java script code, and also make the cosy to read and write, and also for machine to analyze and create. It is based on a subset of JavaScript(Standard ECMA-262 3rd Edition - December 1999). JSON adopts a text format which is complete independent of language, but also the same hobbit similar with C language including C, C++,C#, Java, JavaScript, Perl, Python etc., these features makes JSON an ideal data exchange language.

Struts is the next generation products of Struts,which is combined on the basis both of struts and WebWork, all new structure of Struts 2. Based on the understanding of the knowledge above, first introduce JQuery classlib:

```
<SCRIPT type="text/javascript" src="js/jquery-1.4.2.min.js"
```

```
  mce_src="js/jquery-1.4.2.min.js"></script>
```

and then, in the process of page loan, through JQuery to invoke backstage STRUTS cn.com.cd.action.NewSAction to obtain the JSON object data:

```
<SCRIPT type="text/javascript">
$(document).ready(function(){
$.getJSON("JSONExample!head.action",function(data){
$.each(data.listnew,function(i,value){
$("#gg").append("<P><FONTcolor=red>[Announce
ment]</FONT><A href='NewSshow.action?id="+value.
id+"'>"+value.title+"</A><SPAN><FONTcolor=#999999
align='right'>"+value.date+"</FONT> </SPAN></
P><BR>"); });
});
$.getJSON("JSONExample!head2.
action",function(data){
$.each(data.listtz,function(i,value){
$(,,"n").append(,,"<P><FONT color=red>[ Notice]</
FONT><A href='NewSshow.action?id="+value.
id+"'>"+value.title+"</A><SPAN><FONT
color=#999999 align='right'>"+value.date+"</FONT> </
SPAN></P><BR>"); });
});
});
});
</SCRIPT>
```

```
public String head(){
ds=new CTOD();
ResultSet rs=ds.query(,,"select id,date,title from tb_new
where isnews =1");
try {
while(rs.next()){
News n=new News();
n.setId(rs.getInt(1));
n.setDate(rs.getString(2));
n.setTitle(rs.getString(3));
listnew.add(n);}
rs.close();}
catch (Exception e) {
// TODO: handle exception}
```

```
ds.close();
return „listnew“;}
Finally, through return result type control of STRUTS
getting back to home page, and write the Query
information into MARQUEE:
<package name="examplpe" extends="json-default">
<action name="JSONExample" class="cn.com.
cd.action.NewSAction">
<result name="listnew" type="json" />
<result name="listtz" type="json" />
</action>
</package>
```

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</action>
</package>
```

```
<package name="examplpe" extends="json-default">
<action name="JSONExample" class="cn.com.
cd.action.NewSAction">
<result name="listnew" type="json" />
<result name="listtz" type="json" />
</action>
</package>
```

4.2 Realization of Function Module

According to the users requirement, there are eight function modules including management methods, institute structure, scientific basement, scientific research, academic exchange, scientific research management, register and login.

Click management method, and then can find the Tag Handle Class through STRUTS, codes is as follows:

```
<action name="ORG*" class="cn.com.cd.action.
ORGAction" method="{1}">
<result name="success">/${tojsp}.jsp</result>
</action>
```

This STRUTS file adopts dynamic ACTION collocation method action name="ORG*", and dynamic configuration processing method "method="{1}" and also including dynamic content results back"/>\${tojsp}.jsp".

In the show()method of ORGAction class,it first connects with database, and then writes the database SQL inquiry statement, and the data got after the query is executed, was assigned to the MODEL, next through cycle to put the MODEL into the LIST for page displays.

Finally, the page displays data from query through the STRUTS tag. It reflects the MVC Model (Model, View, View and Controller) design patterns of thought. The purpose of the MVC pattern is implementing Web division of functions of the system. Model layer is to realize the business logic of the system, which usually can be done with JavaBean or EJB. The View layer is used in the interaction with the user, usually through JSP to implement. The Controller layer is the bridge of communication between the Model and the View, it can assign users' request and select the appropriate View to display, meanwhile, it also can explain the users input and map them as executable operation for Model layer. Specific implementation code is as follows:

```
public String show(){
ds=new CTOD();try{
second_title.clear();
ResultSet rs=ds.query(,,"select id,doc_name,doc_first_
title_id from td_manager_paper where doc_first_title_
id="+first_title_id);
while(rs.next()){
PageSecondTitle p2=new PageSecondTitle();
```


