

Realization of Preschool Education Resource Retrieval System Based on Computer Technology

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Abstract

With the popularity of computer technology, anyone can now upload data resources on the Internet today, which means that the authenticity of data information collected in ordinary browsers is not well guaranteed. Nowadays, the accuracy of only using the browser to query the data is not high. In order to improve this situation, this paper builds a preschool education resource retrieval system. In the preschool education resource retrieval system, users can query their own needed information according to the keywords. This system uses JSP technology, the relationship between the front and background is more clear, the system maintenance is more convenient, and can obtain scale support and structural support. This system is not only for students majoring in preschool education, but also for parents and children who need relevant knowledge, which plays an important role in children's physical and psychological development.

Keywords: JSP technology; computer technology; preschool education; resource retrieval; system

1. INTRODUCTION

Nowadays, many people use general search engines to search for information. Although this search method can query information and data from many different sources, it has the problems of inaccurate query, insufficient depth and low reliability. According to relevant investigations and studies, the accuracy rate of the results obtained by using general search engines to query a certain direction information is less than 45%. With the development of information technology, it has been found that the best way to provide users with accurate information is to develop a dedicated vertical engine for a certain field. This paper constructs a vertical search engine for the field of preschool education. If you need knowledge information for preschool children, you can query through this system. This system provides users with high-value-density information resources and related services.

2. EXPLANATION OF TECHNICAL THEORY

2.1. JSP technology

JSP technology is Java Server Pages, which is a simplified Servlet design. JSP is a dynamic web

technology standard advocated by Sun Microsystems and established by many companies [6]. Jsp combines markup (HTML or XML) and JAVA code to handle dynamic pages. When each page is called for the first time, it is automatically compiled into a servlet by the JSP engine and executed, and the compiled servlet is executed without compiling when it is executed again [9]. Simply put, JSP is to insert Java program segments and JSP tags into the traditional HTML files of web pages to form JSP files. The suffix of JSP files is (*.jsp). Web applications developed using JSP are cross-platform and can run on many operating systems [8].

There are three popular technologies in platform development today, namely C#, PHP and JSP. After comparison, it is found that based on the development requirements of this system, JSP technology is the most suitable. As a tool developed by Microsoft, C# can only be executed on Microsoft's server products. JSP and PHP can run normally on a variety of servers, such as Windows, Unix, Linux, etc. JSP has an advantage over PHP because JSP is supported by the server Tomcat. Because this article will use Lucene, so using JSP technology is the best choice [15]. JSP emphasizes the separation of content generation and display, that is, to clearly distinguish the foreground and background of the system. This method can beautify the layout of the

foreground and facilitate the maintenance and update of the background. The code modularization and refactoring of JSP technology is the advantage of JSP [4].

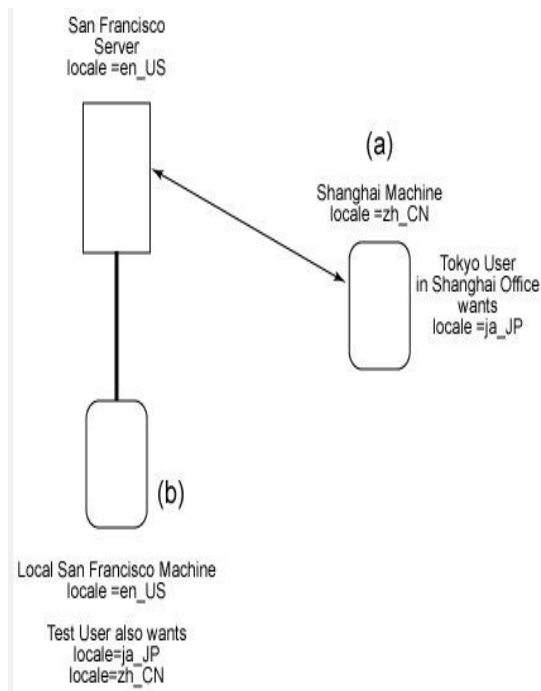


Figure 1: JSP technology

2.2. Lucene

Lucene is an open source full-text search engine toolkit implemented by JAVA. Lucene can be embedded in JAVA to provide full-text indexing and retrieval functions for various services [2]. Lucene is not a complete full-text retrieval engine, but a full-text retrieval engine architecture, which can provide a complete query engine and indexing engine for the retrieval system. This system is to build a complete search system based on Lucene [7].

Lucene has many advantages over other search engine frameworks. Lucene defines a set of index file formats based on 8-bit bytes, so that compatible systems or applications on different platforms can share the created index files. That is, Lucene's index file format can be independent of the application platform. Lucene also implements a block index [3]. Lucene can create a small file index for new files to improve the indexing speed. Lucene is implemented in java and has good compatibility and cross-platform capabilities. The source code of Lucene is open, so the expansion ability is very strong. By setting Lucene, various formats of query can be realized [5].

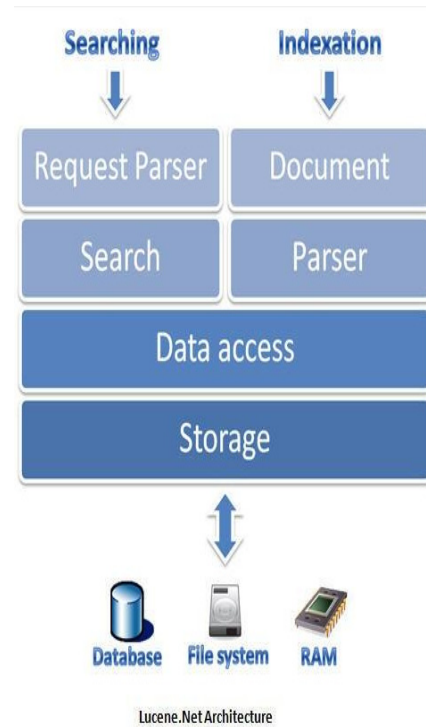


Figure 2: Lucene

2.3. MVC pattern

MVC pattern is Model View Controller. MVC is a software design paradigm. MVC organizes code in a way that separates business logic, data, and interface display. In the MVC pattern, business logic is aggregated into one component, so there is no need to rewrite business logic while improving and customizing the interface and user interaction [1].

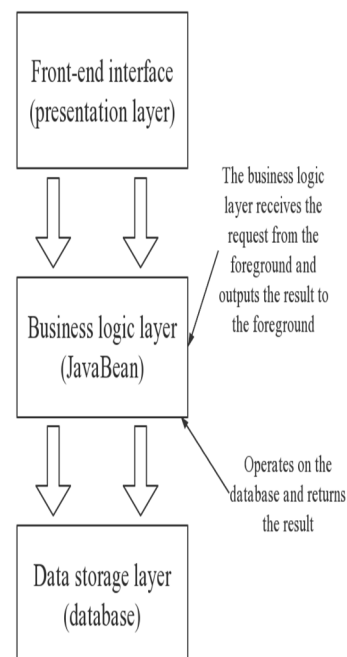


Figure 3: Architecture of the MVC pattern

In the MVC pattern, View is the user interface, and for web applications, it is the HTML interface [11]. Nowadays, with the development of computer technology, the complexity of applications is increased and the scale is gradually expanded, and the processing of pages has become an important issue. The processing of the view in the MVC pattern is limited to the collection and processing of the data on the view, as well as the user's request, but does not include the processing of the business process on the view. The processing of the business process is handed over to the Model for processing. Model is responsible for processing business processes and states and formulating business rules. The design of the business model is at the heart of MVC. The Model accepts the

data requested by the View and returns the final processing result [14]. The Controller is responsible for matching the Model and the View to complete the user's request together. Controller does not do any data processing [12].

3.SYSTEM STRUCTURE

The architecture used in this system is MVC mode, which mainly has three layers, namely View, Model and Controller.

According to the needs of users, the functional structure of the system is mainly divided into four parts, namely navigation module, learning module, entertainment module and consulting module.

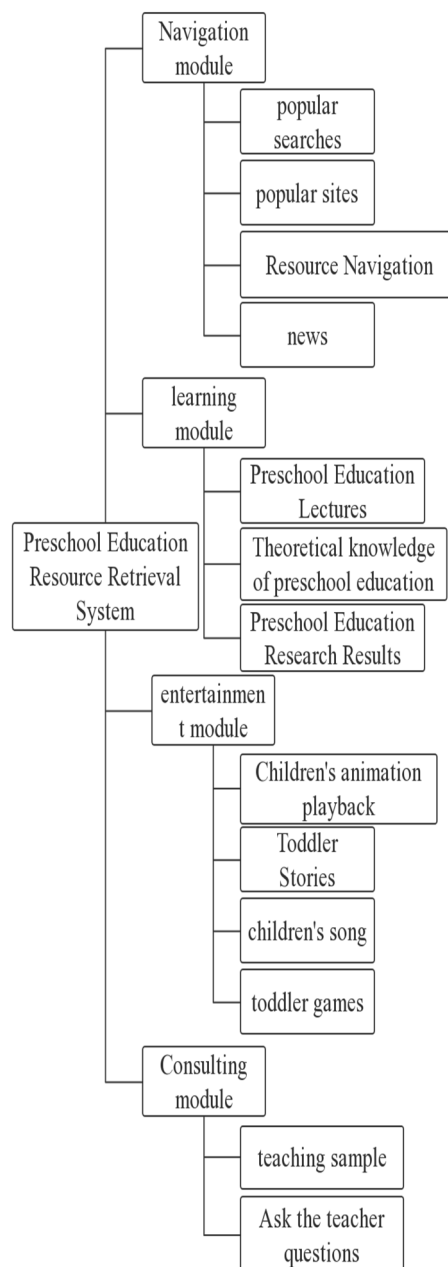


Figure 4: System function modules

In the navigation module, the website displays popular search modules and related websites. The system will set the number of visits fields and statistics in the database and arrange them in order. Users can see their frequently searched keywords and frequently visited websites in the navigation module.

Learning modules are provided for users to learn courses. There are many courses about preschool education in this module, users can choose and inquire according to their own needs [13].

There are many toddler games and toddler animations in the entertainment module. This module is mainly aimed at preschool children and can help preschool teachers or parents guide children's growth correctly.

The consultation module provides users with a channel for consultation with excellent preschool teachers and experts [10].

4. KEY TECHNOLOGIES OF THE SYSTEM

4.1. Use of preparestatement

String INSERT = u insert into book(id, name) values (?,?)"; //SQL statement to execute, ? Refers to the value of id and name to be inserted later.

PreparedStatement ps = conn.prepareStatement(INSERT); // execute sql statement.

ps.setString(1, id); //id is the value of the id field to be inserted into the book

ps.setString(2, name); //name is the value of the name field to be inserted into the book

ResultSet rs = ps.executeQuery();

4.2. Use of Lucene

public List<Document> search(String queryString, int firstResult, int maxResults) //The first parameter represents the keyword to be queried, the second parameter represents the first record per page, and the third parameter represents the maximum number of records per page.

Analyzer analyzer = new SmartChineseAnalyzer(Version.LUCENE_CURRENT); //The analyzer during retrieval must be the same as the analyzer during search. SmartChineseAnalyzer is a new tokenizer for Chinese after lucene 2.9.

// Idiomatic retrieval code omitted

Formatter formatter = new SimpleHTMLFormatter("",""); //Highlight format to insert for keywords

```
Scorer scorer = new QueryScorer(query);
Highlighter highlighter = new Highlighter(formatter,
scorer); //Construction Highlighter
Fragmenter fragmenter = new
SimpleFragmenter(50); //Specifies the length of the
digest
highlighter.setTextFragmenter(fragmenter);
List<Document> recordList = new
ArrayList<Document>();
int end = Math.min(firstResult + maxResults, docs.
totalHits);
for (int i = firstResult; i < end; i++) {
ScoreDoc scoreDoc = docs.scoreDocs[i];
int docSn = scoreDoc.doc; // Document internal number
Document doc = indexSearcher.doc (docSn); // Get the
hit document based on its internal number
String hc^highlighter.getBestFragment(analyzer, "key
Word", doc.get("keyword")); //Highlight keywords and
return results
String content = doc.get("keyword"); //Set fields for
summarization
int endIndex = Math.min(50, content.length());
hc = content.substring(0, endIndex); //Returns up to 10
characters
recordList.add(doc); //Add highlighted and abstracted
objects to focus
}
return recordList;
}
```

5. CONCLUSION

This paper constructs a preschool education resource retrieval system for preschool education students, parents of preschool children and preschool children. As an educational resource platform with information retrieval function, this system has strong security and convenience, and is of great practical value for preschool education.

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