English Smart Teaching Platform Algorithm and Design

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Abstract. With the development of the information age, continuous improvement of English teaching is necessary to comprehensively improve the quality of higher education; it is an important means to cultivate talents with innovative spirit and practical ability; moreover, it is an effective way to promote teaching innovation, promote the process of modern informationization of education, and enhance the quality of talent training. This paper mainly analyzes the feasibility, process, functional requirements and use cases of the Python-based English intelligent teaching platform to determine the functions to be achieved by the whole Python-based English intelligent teaching platform. It also provides standards for the code implementation and testing of the Python-based English intelligent teaching platform to make teaching more efficient and thus achieve the purpose of improving students' overall quality.

Keywords: python technology · MYSQL database · English intelligent teaching platform

1 Introduction

With the advent of "Internet +" era, modern information technology has been adopted by more and more universities to adopt computer-based and classroom-based English teaching mode. It is an important means to cultivate talents with innovative spirit and practical ability; it is also an effective way to promote teaching innovation, promote the process of modern informationization of education and improve the quality of talent training. However, there is little research on the intelligent classroom teaching mode of college English in China [1]. The purpose of this paper is to explore a new intelligent teaching strategy for college English, in order to bring some help and inspiration to the front-line teachers and further improve the system. This paper firstly explains the current situation of college English teaching and its main problems; secondly analyzes the necessity of building a smart classroom; secondly proposes the basic strategy of building a smart teaching platform for college English based on the network environment; finally discusses the concrete results through practical application, i.e. the following goals can be achieved: "learner-centered"; making teaching and learning more harmonious and efficient [2]. This will lead to a comprehensive improvement of students' overall quality.

The definition and characteristics of the smart classroom are defined; the problems of English teaching in China are analyzed at the levels of teachers and students; the concept of building a smart teaching platform for college English based on the network environment is proposed, and its connotation is explained [3–5]. On this basis, we design a set of "Internet + English Smart Teaching Model" suitable for college students with different professional backgrounds, namely: learner-centered flipped classroom teaching model (OBE); online learning evaluation system (MOOC); personalized learning management system (SPSS). The teaching mode is to realize interactive communication between teaching and learning by establishing an open and shared network platform; to combine traditional teaching methods with modern education technology by using information technology; to make learners become the main subjects of learning, so that they can find problems and solve them independently, thus improving their comprehensive quality, enhancing teaching quality and promoting teaching reform in universities [6–7]. The purpose of this project is to explore how to effectively carry out the practical activities of intelligent teaching, so as to give full play to the nurturing function of English courses and cultivate innovative talents.

2   Analysis of College English Smart Teaching Platform

2.1   Feasibility Analysis

(1) Economic feasibility
Most of the tools used in the system are currently popular and open source free of charge, so in the initial stage of development, the amount of money spent on the system will be greatly reduced, so that the development of the system will not be affected by the financial problems during the project start-up period, so it is economically feasible. Minimal.

The cost of the system will be minimized to meet the needs of the users. Save money on servers and various equipment costs. We aim to go wider and wider on the road of efficiency. So I think there is no problem in economic feasibility.

(2) Operational feasibility
The system design refers to several development cases of this type of website, analyze their operation interface, and summarize the characteristics of many cases, which basically highlight the human-oriented and simplified operation, so people with basic computer knowledge have no problem to operate this system.

Therefore, I think there is no problem in operational feasibility.

2.2   System Process Analysis

Business process refers to the use of some specific symbols and lines to demonstrate the process of the user in the use of the system, in the analysis of the system, the developer can be better understood through the business process, but also more convenient for developers to find the problems of the system, and then improve the whole system [9].

2.3   System Functional Analysis

According to the role of Python based English intelligent teaching platform, I divide the system into three parts: student user management module, teacher user management module and administrator management module.

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Student user management module

(1) Student registration and login: Student users register as student users and login to the Python based English intelligent teaching platform; student users add, delete, change and check personal information, such as personal information and password modification.

(2) View the home page information of Python English Teaching Platform: The home page information of Python English Teaching Platform includes home page, announcements, online exams, teaching news, course resources, my favorites, my account, personal center, etc.

(3) Bulletin Board: On the navigation bar of the home page, we will see the menu of "Website Forum", after we click into it, we will see all the announcements released by the administrator in the background.

(4) Teaching news: On the navigation bar of the home page, we will see the menu of "teaching news", after we click into it, we will see all the teaching news information released by the administrators in the background, we can like the teaching news, and if we want to find the news faster next time, we can also bookmark and comment on it.

(5) course resources: we will see "course resources" menu on the navigation bar of the home page, after we click into it, we will see all the course book information released by the administrator in the background, we select the course we want to know to check the information, view the course information, you can like + favorite + comment.

(6) My Favorites: Under "My" you can view and manage "My Favorites" information, you can view favorites, and you can also delete favorites for information you don't like.

(7) My Account: When users click the "My" button in the upper right corner, a sub-menu will appear, and they can set their personal information and password for logging into the system by clicking "My Account".

(8) Personal Center: When users click the "My" button in the upper right corner, they will enter the corresponding background for information management; Administrator Management Module.

(1) Login: the administrator account is set directly in the data table to generate, no need to register.

(2) Site Management: When clicking on the menu "Site Management", two sub-menus will appear: Rotation Chart + Bulletin Board, which can be added, deleted, and checked for these two modules.

(3) User Management: When clicking on the menu of "User Management", three sub-menus of Administrator + Student User + Teacher User will appear, and you can add, delete, and check these three modules.

(4) Content management: When clicking on the menu of "Content management", three sub-menus of teaching news + news category list + online examination will

appear, which can manage the teaching news submitted by users in the foreground, and add, delete and check the course resource information displayed in the foreground.

(5) More management: When clicking the menu "More management", three submenus of student information + teacher information + course resources will appear, which can add, delete and check student information + teacher information, and control the course resources submitted by student users/teacher users.

3   Overall Design of English Smart Teaching Platform

3.1   System Architecture Design

The Python-based English intelligent teaching platform is architecturally divided into three layers: the presentation layer (UI), the business logic layer (BLL), and the data layer (DL).

(DL)
Presentation layer (UI): also called UI layer, mainly completes the UI interaction function of the Python English wisdom teaching platform, and an excellent UI can greatly enhance the user's experience and improve the user's comfort when using the Python English wisdom teaching platform. The UI requires a reasonable interaction function to ensure that users can get interaction results when they are interacting, so the system ensures a good interface between the presentation layer and the business logic layer.

Business logic layer (BLL): It is mainly responsible for the data processing function of Python English intelligent teaching platform. In this layer, users process the data transmitted from the presentation layer and deliver it to the data layer.

Data layer (DL): Since the data based on the Python English wisdom teaching platform is placed in the mysql database on the server side, the part that belongs to the service layer is directly integrated in the business logic layer, so there is only the database in the data layer, which is mainly responsible for realizing the data storage and management functions of the Python English wisdom teaching platform.

3.2   System Function Module Design

1) Overall functional module design
In the previous chapter, we analyzed the functional and non-functional requirements of the system, and analyzed the use cases in this Python-based English intelligent teaching platform according to the requirements. The next step is to start designing the architecture, main functions and database of this Python-based English intelligent teaching platform [10].

2) User module design
The backend administrator is able to add, delete and check the registered users in the frontend. The core code is as follows:

// Personal information modification @RequestMapping("/evainformation")

public String updateinformation(int cid, int ev1, int ev2, int ev3, int ev4, int ev5, int ev6, int ev7, int ev8,int ev9, int ev10, int ev11, String ev12, HttpServletRequest request)

{//Receive all fields of student personal information from the JSP page and use the corresponding type of fields for background reception

Evaluation evaluation = new Evaluation();

HttpSession session = request.getSession();

// Get the current student's personal ID

Student student = (Student) session.getAttribute("students");

evaluation.setStuid(student.getStuid());

evaluation.setCouid(cid);

evaluation.setEvav1("" + ev1 + ev2 + ev3 + ev4 + ev5 + ev6 + ev7 + ev8 + ev9 + ev10 + ev11);

evaluation.setEvav2(ev12);

// Reinsert the modified data of students' personal information

evaluationdao.insertEvaluation(evaluation);

//Update the database and complete the operation of updating personal information

return "forward:participateevaluation";

3.3   Database Design

Database design includes requirement analysis, conceptual model design, and database table creation, of which requirement analysis has been described in the previous sections, and conceptual model design has two parts: conceptual model and logical structure design. The main code is as follows:

```
@RequestMapping("/mycourselist2")
HttpSession session = request.getSession();
//Get the personal information of the current student
Student student = (Student) session.getAttribute("students");
//Get personal information and put it into a List collection
List<Course> courses = Selectiondao.showmylist(student.getStuid());
```

//Set up a two-dimensional array that holds personal information and the class information that needs to be modified;String str = new String;int i,j;

```
for( i=0;i<str.length;i++){for( j=0;j<str[i].length;j++){str[i][j]="";}}
for(Course course:courses)
{i=course.getCoutime()/10;j=course.getCoutime()%10;str[j-1][i-1]=course.getCou
```
name()+"<br/>"+course.getCouclassroom();}

//Store   class   management   information   into   the   model   and   database-map.addAttribute("mycourselist", str);

```
return "mycourselist2";
```

4 Conclusion

This question focuses on the feasibility analysis, process analysis, functional requirements analysis, and system use case analysis of the Python-based English intelligent teaching platform to determine the functions to be achieved by the whole Python-based English intelligent teaching platform. It also provides standards for the code implementation and testing of the Python-based English intelligent teaching platform.

The requirement analysis of the whole Python-based English intelligent teaching platform mainly focuses on the overall system architecture and the design of functional modules, and the database system design is completed by establishing the E-R model and the database logic system design. By writing test cases for the Python English wisdom teaching platform, the user login section, course view section, course add section, course search section, and password change function have been tested, and these five modules provide strong technical support for the later promotion and operation of the Python English wisdom teaching platform.

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