

Implementation of mobile learning platform with Android

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Abstract. The mobile learning platform system applies C/S structure. It not only implements the functions including user registration, login, inquiry, downloading learning resource information and delivering help information on mobile client, and implements the functions of managers managing domestic consumer, resource information and voice message, but also is tested on Android smartphone, which makes people realize recreation and enjoy file sharing and learning exchange.

Introduction

Mobile learning means based on the matured mobile internet, students and teachers flexibly implement interactive teaching activities by using mobile equipment (such as mobile phones), and the technique depends on mobile internet. Rapid development of mobile internet makes hardware manufactures, software manufactures and independent developers realize new development space, but the competition about mobile phones, application software and program development is increasingly fierce. With the development of mobile software and hardware and mobile internet, mobile phones can complete more and more tasks which need to be completed by the computers. The advantages of portability, privacy, interaction, flexibility and individuality of mobile phones make the commercial value greater and greater. According to the investigation provided by Wu Hequan, the vice president of Chinese Academy of Engineering, there are 11% of 420 millions of netizens using mobile phones and digital cards to surf the internet. And the users using intelligent terminal to surf the internet has occupied 10%~50% of netizens. After nine years, the users of mobile internet will be more than that of fixed internet. Therefore, as the supplement of traditional teaching and network teaching method, the application of mobile learning platform must promote the learning of students, and improve the development of network teaching, and it provides a method to establish learning society.

Requirement Analysis

The system consists of server-side program and mobile client-side program.

Server back-stage management.

(1) User information management

① Addition and deletion of user information

Managers not only can add new teacher users, student users and even new managers in the background, but also can delete ineffective or overdue users. And managers can add the information of new managers.

② Modification of user information

Managers have the authority to modify the type, nickname and log-in password of users.

(2) Resource information management

① Modification and deletion of resource information

Managers can modify the name and route type of the uploaded resources, and can delete the information of ineffective or illegal resources.

② Resource file review

According to the storage directory of the uploaded file, the managers find out and open the file, and review the file. If the file meets the requirement, the file passes the review, and the managers modify review fields of resource information, or it is deleted.

③ Resource file recommendation

According to the downloads, content and user comment of the reviewed files, the managers can set resource resources as resource file recommended by managers.

(3) Voice information management

① Modification and deletion of voice information

Managers can modify and delete the voice message.

② Addition and deletion of system message

Managers can add or delete the system information in message list.

(4) Resource type information management

Managers can add, delete and modify resource type information.

2.2 Mobile client-side user operation

(1) Login and registration

① User registration

On mobile client side, the users can input few messages for registration, but the users registering on mobile side are student users.

② User login

On mobile client side, teacher or student users can log in, and they can set the functions of remembering password and automatic login.

(2) Resource file information operation

① Viewing resource file list

The users generally can view managers recommendation resource list on client side, and can select the classified resource file information which has passed the review of managers. \

② Viewing resource details

The users logging in client side can click list and open resource details to view detailed information of resources, can download resources.

③ Commenting resources

The users who have downloaded the resources can comment the resources and feedback the application condition of the resources.

(3) Delivering message information

① Delivering or responding requirement information

If the users need a resource urgently, the users can deliver requirement information on client side, and the server transmit the information to all users. If the users have downloaded the resource which is required by other users, the users can reply the requirement information and tell the requirement publisher that the resource has been downloaded.

② Delivering help information

If the users have problems and have no solutions, the users can ask help from other users.

(4) File upload

If the users want to share good resource files, the users can upload the files according to requirements.

Overall Design

The system uses C/S mode. The client side means mobile client side or handheld device with Android system. The client side receives the information and sends the information to internet server. The server analyzes the information of users, and transfers the information into data requirement. And the server analyzes and processes the data, and sends it to the mobile client side. The feature can realize that students complete teaching and learning activities by the communication between wireless mobile network and internet.

Server side. Back-stage management of server side is divided into administrator login module, user management module, resource information management module, message management module and resource type information management module.

Mobile client side. Mobile client side is divided into user login and registration, administrator recommendation, resource classification, resource order, individual center and feedback message module.

Design and Implementation of Mobile Client Side

Home page recommendation module. The top of home page interface is the title, and the middle is the data list. The data is displayed with the form of list. And List View of Android is used. ListView is the component which is generally used in Android program development, and the component must be used with adapter which provides display style and data. ListView generally uses setAdapter (ListAdapter adapter) method to set adapter which provides array options.

Resource classification browser module. Resource classification browser is easy for users to view the required resources. The users can select their favorite resource type to display resource list.

In order to display resource classification, the module not only uses list view and adapter, but also uses PopWindow. The users click the marks, and there is PopWindow window. After click, the data is refreshed.

In the development process, if popping up a dialog box generally uses AlertDialog, which is not flexible. So we often use the method combining PopupWindow and ListView with great flexibility to implement popping up the window of option menu.

Resource download ranking module. The module shows resource downloads. As the resources may be good or bad, downloads is the standard for the users to judge the resources. The resources with high downloads are the resources with great requirement by the users which not only saves the time for the users, but also provides the best choice for the users. Resource download interface uses ListView and Adapter, but the data is shown according to the order of downloads.

Personal center module. Personal center module shows the nickname and log in situation of users, and provides buttons, which is easy for the users to view operation history and upload resources. Personal center interface not only displays the number and type of users, but also shows the number of users uploading and downloading messages. The data needs to be achieved again from the server, which needs Async Task. Android provides a classification for asynchronous processing, AynsTask classification. Applying the classification can develop a new thread for the program, and it returns after process. AsynTask classification is a capsulation of Thread classification, and some new methods are added. AsysTask classification uses the internal callback functions, doInBackGround(), onPreExecute(), onPostExecute() and onProgressUpdate(). It is the callback functions that compose the logic structure of AsynTask classification.

Feedback message module. Feedback message module firstly realizes the display of user browsing the messages, which includes system prompt, requirement message and personal message. Secondly, users can select reply or directly click the button to add the messages. Implementing the function uses ListView to achieve the implementation effect which is similar to ExpandableListView.

Conclusions

The objective of the research is to implement the communication and file delivery of mobile side and server side, and the user can register and enter on mobile client side, browser resource information list, download resources, comment resources and view message information. The back-stage administrators operate the database by Web website for user management and search, resource information management and search, and message information management and search. If the research achievements can be applied in schools successfully, can connect all mobile phones with Android platform in schools, and can integrate the learning resources, it will be popular with the students, and the students can enjoy learning interest anytime and anywhere.

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