

# Design of Teaching Management Platform Based on ASP.NET WebApi

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## Abstract

The mobile Internet is impacting the education industry. The existing teaching equipment is no longer sufficient to meet the needs of teachers and students for teaching. The mobile teaching platform that builds courses according to teaching needs has become the trend. The teaching management platform has increased the communication between teachers and students through the mobile Internet, and created a large-scale answering system and a learning resource sharing platform.

## Keywords

Teaching management platform, C #, WebApi, ASP.NET.

## 1. Preface

After a series of investigations and analysis, we found that during the teaching process, teachers had the trouble of checking the homework assignments and were unable to accurately understand the students' grasp of the knowledge points. The students also struggled to find them during the learning process. Suitable questions. In learning, learning a knowledge point often requires deepening the memory by practicing multiple question types, However the emphasis of different workbooks is different. Teachers often need to look through a large number of workbooks when summing up the question types. This compilation method is a heavy task for teachers, which seriously slows down the teaching speed and reduces the quality of teaching. Under this background, our teaching management platform was born and used. This platform integrates the outstanding question types summarized by major well-known hisgh schools, outstanding publishers and top teachers in the country, forming a huge number of high-quality question banks

## 2. System Function Design

The design and implementation of the teaching management platform based on ASP.NET WebApi is mainly to reduce the burden on teachers and students, and to solve the problem that teachers find it difficult to find suitable topics in class preparation and teaching. The platform statistics and analyzes the student's learning situation and answering situation. Enable teachers to master the key points of teaching to understand the mastery of students. Exactly answer questions based on students 'answers to reduce the workload of teachers and the burden of students' repeated practice on the tasks they have mastered, thereby improving teaching efficiency.

### 2.1. Teacher User Function Design

The system provides teacher users with the following functions: account binding function: binding with student accounts, creating classes and managing classmates' information; question query and assignment layout functions: teachers can use the subject, key, and key in the question bank Words, title year, etc. to search for questions to form their own test papers;

online test function: teachers start online answering after the test papers are completed, the teacher can set the time for answering the questions, automatically rewind the papers after the prescribed time and stop the students to continue to answer the questions Data analysis function: understand the students 'mastery of various knowledge points by analyzing the students' problems.

## 2.2. Student User Function Design

The system provides student users with functions of receiving homework: students can log in to their accounts to download homework after the teacher sends homework; online answering function: answering functions is divided into two situations: homework and exams. Through the wrong question book function: automatically generate the wrong question book after answering the questions, students repeat the answer or review to achieve the purpose of consolidating the knowledge point; question analysis function: check the analysis of the question to get the correct process of doing the question; question pk Function; divided into real-time battle and online qualifying. In qualifying mode, students can choose subjects independently and compete with students who match their own ranks. Students can check their rank. Real-time battle is an online real-time pk Perform automatic matching. If there is no match, then enter a man-machine battle. The battle time is 15 minutes, eight questions, the choice is blank or fill in the question, and the high scorer wins.

## 2.3. Administrator User Function Design

The system provides administrator users with the following functions: inputting the title function and adding the title permission function: enter the title list into the database and set the permission for the title; account management and account permission management: view account information, perform role management, and management Account information, reset account password.

## 3. System Technology

In order to satisfy users that the system may be used on multiple operating systems such as Android and Windows, the teaching management platform should adopt a B / S structure, which can make the system compatible with most mainstream operating systems. In order to ensure the security and stability of the database, The SQL Server database is selected as the database of the system on the database. At the same time, in the process of the system development process, the software engineering development process should be followed, and the audit at each stage must be strictly controlled, and the system quality management work must be done. Next, plan for the platform. The key technologies adopted are discussed.

### 3.1. Full Front and Back Separation Mode

The system is developed using a completely separated front-end and back-end mode. The advantages of this development are: 1) The front-end and back-end are completely decoupled, the front-end is responsible for data rendering and routing, asynchronously calls the back-end interface, and the back-end server provides interface support. It can be handed over to different project groups to make the development more professional. 2) It is conducive to the expansion of the project. Because the front-end and back-end are basically uncoupled, modifying the front-end code will not affect the back-end code. If the front-end needs to add modules, just add The corresponding interface can be used, which makes it easy to extend the application. 3) Universal back-end code, as long as the front-end code follows the calling rules of the back-end interface, a set of back-end code can support a variety of front-end applications, greatly reduced development costs.

### 3.2. Bootstrap Front-End Style Library

The teaching management platform uses the current popular Bootstrap technology as an important framework system. Bootstrap is based on HTML, CSS, and JavaScript. It is simple and flexible, making web development faster. It has improved development efficiency, standardized name definitions, easy maintenance, and standardized The project development process, the css code is more clear and simple. The html code is more reasonable. The advantages of large-scale projects can reduce user downloads.

In order to achieve good design effect, you need to optimize according to actual situation, such as Web page design renderings, you need to write a custom html code structure to optimize. Only in this way can you make the corresponding code design according to the actual situation and make the html semantic. You can also add modified CSS code to enable it to achieve the front-end effect of the Web. Designers should strengthen communication and summarize the design work, comprehensively analyze the existing problems, and based on the analysis results, find the balance between the code structure and page effect to obtain a better design effect.

### 3.3. Database Design and Implementation

As in today's era of rapid development of computing power, the impact of the complexity of program code on operating efficiency is relatively small . The key lies in the efficiency of the system's processing of data. The key to improving efficiency lies in the data processing ability and the rationality of the data structure. Therefore, designing a clear and reasonable database is very important for a program.

The SQL sever2014 database used by the platform has informational, inductive statistics, and implements functions such as statistics, summary, and data management among data. It mainly focuses on the connection and summary of data, and stores data in a reasonable manner, thereby improving the efficiency of the database.

## 4. Conclusion

ASP.NET WebApi-based teaching management platform applies mobile devices to face-to-face teaching activities, which is applicable to universities and colleges, enhances teachers' understanding of students' knowledge of mastery, meets the common needs of teachers and students, and solves teachers' summary The need to look through a large amount of data during the question type improves the efficiency of teaching and the quality of teaching. It has contributed to the development of education and has good development prospects.

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