



# Design and Implementation of Ideological and Political Education Network Platform for College Students under ASP.NET

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## Abstract

In order to respond to the call of the state to strengthen the ideological education construction of college students and promote the reform and development of ideological and political education mode in colleges and universities, this paper designs and develops a network platform for academic ideological and political education in colleges and universities based on ASP.NET by taking advantage of the high dynamic and interactive characteristics of current network information technology. Aiming at the problems of how to attract students and how to effectively carry out the network ideological and political education, the author analyzes and designs the function of the network platform of ideological and political education. ASP.NET uses C# language, Razor syntax and MVC pattern to provide technical conditions for the construction of the platform. The network ideological and political education platform realizes the functions of examination and approval and management of students' extracurricular practical activities of ideological and political education, and expands the channels of communication between students and schools and between students to optimize the construction of ideological and political education on campus. The practice shows that this platform has achieved the purpose of scientific rationality, high availability, high reliability and expansibility, and effectively enriched and improved the network ideological and political education teaching system of the school.

**Keywords:** *ASP.NET; ideological and political education; network platform; college education*

## 1 INTRODUCTION

The ideological and political education in China's colleges and universities shoulders the important responsibility of training advanced talents with advanced ideas, firm ideals and excellent quality in the new era for the society and the country. Ideological and political education also plays an important guiding role in college students' initial social work development in the future. Therefore, the ideological and political education in colleges and universities is an indispensable educational work in college students' study career. Ideological and political education is different from other professional education courses that simply impart students' professional knowledge and practical skills. Ideological and political education belongs to long-term education. Only through long-term efforts can it play a substantial role in establishing a correct outlook on life, values and world outlook for college students, and guide students to change their negative thoughts and correct their misconduct. However, due to the limitation of class hours,

the traditional ideological and political education has only a very short "guarantee period" on students' thoughts, and can't play a real role in "educating people" [6]. At the same time, due to the narrow resources of ideological and political education, single resource content and low utilization rate of practice, many college students, who are the main body of ideological and political education, lack interest in ideological and political education. This situation leads to the quality of classroom teaching is often not guaranteed [4]. With the rapid development of Internet information technology, contemporary young college students are growing up in this period, and their lifestyle is directly influenced by the development of information technology. Various mobile and PC network platforms have become daily tools that are used frequently in college students' lives. At the same time, because college students usually carry out communication activities such as community communication, making friends in school and communication between teachers and students through the network platform, the network platform has naturally

become an important carrier for many colleges and universities to condense students' thoughts.

Since the 40 years of reform and opening up, the state has always attached importance to the ideological and political education of college students. For the ideological and political education in colleges and universities, the State issued a series of policies, such as Opinions on Further Strengthening and Improving the Propaganda and Ideological Work in Colleges and Universities under the New Situation. The document clearly stated that "taking the initiative to occupy the new position of network ideological and political education" emphasized that "we should make full use of new communication means to innovate the propaganda and ideological work in colleges and universities, master the initiative of network public opinion, and put forward clear requirements for the innovation of network ideological and political education". Under this situation, ideological and political educators in colleges and universities should play an active guiding role in the online education of students, make full use of the real-time communication and sharing characteristics of the network, and take students into the mainstream values education in colleges and universities by organizing the ideological and political education network platform, so as to carry forward the main melody melody and transmit positive energy among college students.

This paper holds that, under this background, it is necessary to explore the construction of college network ideological and political education platform based on ASP.NET framework and MVC design pattern, which uses C# language to connect with SQL Sever database. It is not only an urgent need to implement the spirit of the national conference on ideological and political work in colleges and universities, but also a realistic need to strengthen and improve ideological and political education in colleges and universities and enhance the actual effect of educating people [2].

## 2 KEY TECHNOLOGY

### 2.1 ASP.NET

ASP.NET is a Web development platform based on .NET Framework launched by Microsoft. At present, the latest version is ASP.NET Core (also known as ASP.NET 5), which is an open-source cross-platform development framework for building modern Web

applications based on cloud. ASP.NET is a dynamic Web page technology. When users access documents through HTTP, ASP will generate related web pages on the web server. It is a Web application development framework that is rebuilt from the bottom to provide excellent performance, and can be deployed on the cloud or local server. ASP.NET is a program compiled and run based on a common language. Its implementation depends entirely on virtual machines, so it is suitable for programmers of all levels, which is also an important reason for its rapid popularity. ASP.NET has achieved true cross-platform, and users can develop and deploy Web applications on Windows, Mac and even Linux systems. Web Forms is a traditional event-driven ASP . NET model. It integrates HTML, server controls, server events and web pages of server code. In the Visual Studio development environment, developers can generate foreground pages by dragging and dropping web elements, and the way to write logic codes to operate these web elements in the background is to develop WebForms applications. The Web Forms request process is shown in figure 1. It is a Web development platform based on .NET Framework launched by Microsoft in ASP.NET. At present, the latest version is ASP.NET Core (also known as ASP.NET 5), which is an open-source cross-platform development framework for building modern Web applications based on cloud. ASP.NET is a dynamic Web page technology. When users access documents through HTTP, ASP will generate related web pages on the web server. It is a Web application development framework that is rebuilt from the bottom to provide excellent performance, and can be deployed on the cloud or local server. ASP.NET is a program compiled and run based on a common language. Its implementation depends entirely on virtual machines, so it is suitable for programmers of all levels, which is also an important reason for its rapid popularity. ASP.NET has achieved true cross-platform, and users can develop and deploy Web applications on Windows, Mac and even Linux systems. Web Forms is a traditional event-driven ASP . NET model. It integrates HTML, server controls, server events and web pages of server code. In the Visual Studio development environment, developers can generate foreground pages by dragging and dropping web elements, and the way to write logic codes to operate these web elements in the background is to develop WebForms applications. The Web Forms request process is shown in figure 1.

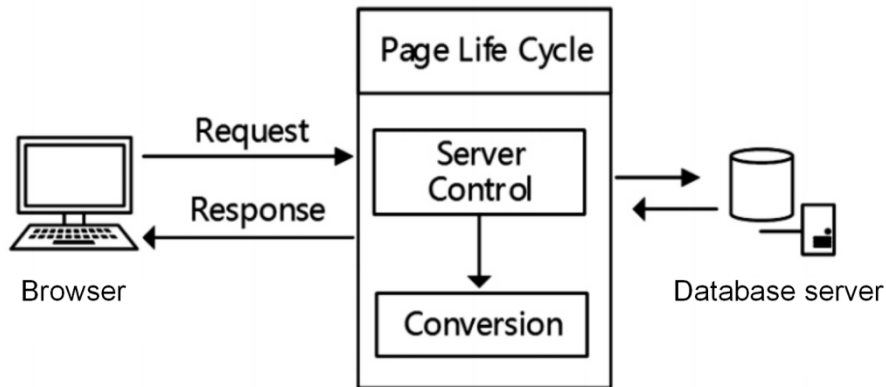


Figure 1: Operation diagram of ASP.NET Web Forms page

### 2.2 ASP.NET MVC

MVC framework model has the characteristics of low coupling, quick deployment and high maintainability, which can facilitate division of labor and cooperation. Using this mode, user requests are routed to the controller, which is responsible for using the model to perform user operations and retrieve query results. The controller selects the view to be displayed to the user and provides it with the required model data. MVC consists of three

core modules: Model, View and Controller. Among them, Model is responsible for data processing, which is the part of application program used to process application data logic. View is responsible for view presentation, which is the part of the application that deals with data display. The Controller is responsible for handling the logic between the view and the model, which is the part of the application that handles user interaction. Usually, the controller reads data from the view, controls user input, and sends data to the model. The general MVC process is shown in Figure 3 [9].

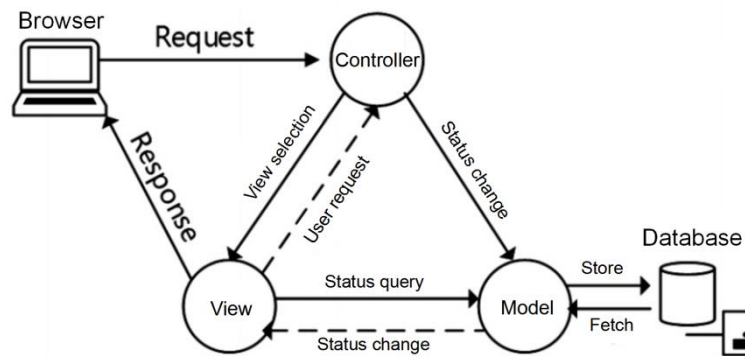


Figure 2: Structural diagram of MVC model

The background code and server controls are the root of all the problems of Web Forms in ASP.NET. To solve these problems, Microsoft released the innovative ASP.NET MVC based on ASP.NET Web Forms in 2009. The Controller contains the background code logic, the

View includes some pure HTML code content in the class library of ASP developing Web applications, and the Model is the middle layer. The relationship between these three parts is shown in Figure 3.

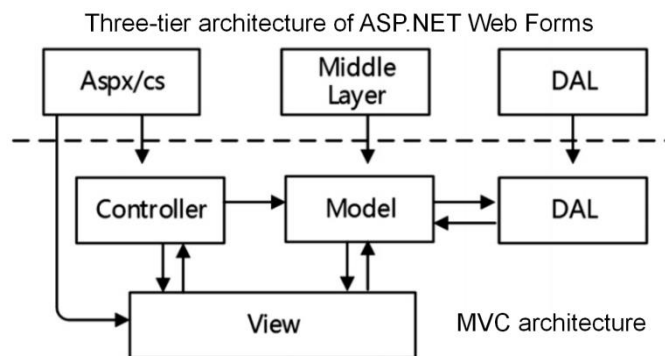


Figure 3: Corresponding relationship between three-tier architecture of ASP.NET Web Forms and MVC

### 2.3 Razor

Use ASP.NET C# to build a webpage templating syntax for dynamic webpages, which is called Razor. Razor is a markup syntax, a template engine for developing HTML, which can embed server-based codes (Visual Basic and C#) into web pages. Razor is not a programming language, but a markup language on the server side. Razor can embed server-based C# code into web pages. ASP.NET MVC uses Razor engine view. Coding page-based scenes through Razor Pages is easier and more efficient than using controllers and views. With Razor, you can use any HTML or C# function and get better technical support for IntelliSense editor. IntelliSense can provide auto-completion, real-time type and syntax checking in Razor.

### 2.4 Development environment

The operating system of this paper is Windows 10, and the integrated development environment is Visual Studio 2019. The Web server used in Chinese version is IIS 8.5. Using "Model-View-Controller (MVC)" pattern in ASP.NET framework based on .NET Framework 5.0 and C# language for web development. The system uses SQL Server 2019 and EF (Entity Framework) to create related databases and database access layers. Visual Developer provides different templates for building web applications. This system platform uses WebMatrix for Web Pages based on Razor syntax, and Visual Web Developer for MVC and Web Forms. We will use Visual Web Developer to create a blank MVC Internet application with HTML5 markup. After opening the MVC Internet application, click the Visual C# Template of the New Project dialog box. Select the template and set the project name to MvcDemo, and then set the disk storage location, such as d:\sizhengjiaoyu\_demo. Save the project and then open it. The template is Internet Application, the engine is Razor, and the HTML5 type tag is selected. Click OK after completion, and Visual Studio Express will create the development environment of the project. Through the introduction of the above key technical theories, we have determined the overall environment of the system development, the

configuration of related software and tools, and the technical feasibility of building the overall project based on the ideological and political education platform of ASP.NET [7].

## 3 REQUIREMENTS ANALYSIS

### 3.1 Functional requirements analysis

In order to promote the development of ideological and political education based on network, this paper develops a platform system of ideological and political education in colleges and universities based on ASP.NET. The system will support two kinds of user roles, one is the student user, the other is the teacher user. The platform enables teachers and students to register their accounts by applying, and log in and use the software with one-to-one account passwords. Developers give teachers and students different management rights. The ideological and political education teaching platform in colleges and universities based on ASP.NET aims at the current difficulties and shortcomings, according to the actual needs of students and teachers, and with the help of the advantages of network information technology, it realizes the transformation of the teaching mode from the traditional classroom teaching mode theory to practice, thus achieving the goal of information reform of ideological and political education. Through this platform, students can actually participate in various activities of ideological and political education, by participating in volunteer activities, watching or participating in ideological and political debates and competitions, and watching patriotic lectures. Besides, college students can deepen their understanding of ideological and political education by reading news, excellent articles on ideological and political education and other materials. Teachers can audit and manage the ideological and political education activities in schools through the application schedule of various large-scale ideological and political activities submitted by students, read and grade the manuscripts of online essays, summarize the opinions on the construction of campus ideological and political education put forward by

students and submit them to the higher school leaders for feedback.

### 3.2 Global design

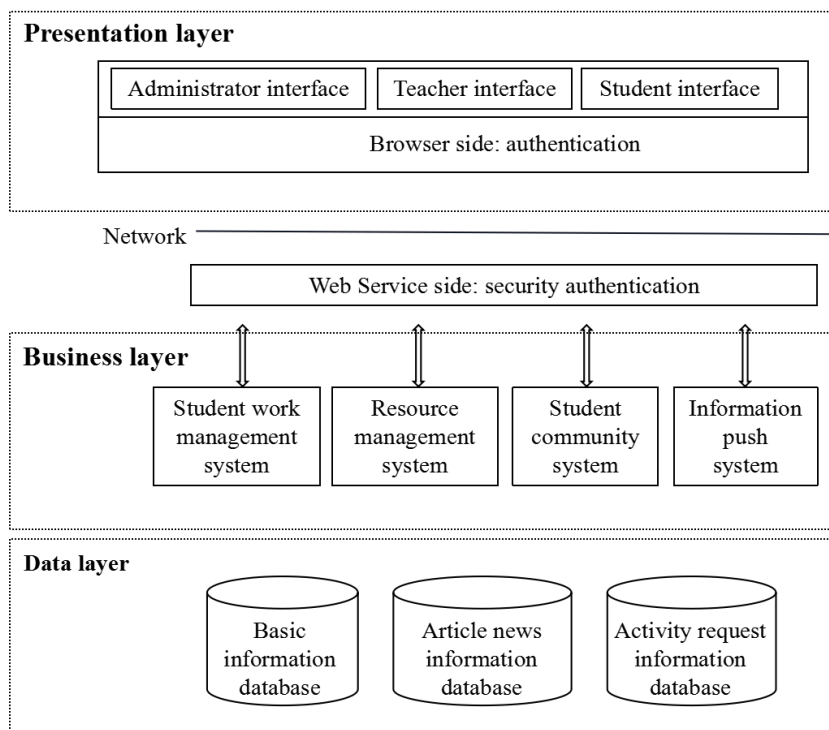


Figure 4: Overall design of ideological and political education platform

The construction of ideological and political education platform in colleges and universities will be based on web technology, adopting the framework of ASP.NET, according to MVC pattern, and applying C# and Razor grammar to complete the system development. The overall design of the author's system is represented by three layers of B/S architecture.

(1) Data Access Layers (DAL): It is mainly used to independently perform various operations on the text file database after receiving the client's request. It is an operation on data, rather than a single database storage function, and provides data services for the business layer or presentation layer. The database adopts SQL Sever 2019. ADO.NET is adopted as the technology to connect with the database. The basic database of the data layer of the ideological and political education network platform in colleges and universities includes the database of students' and teachers' basic information, the database of articles and news documents, the database of various application forms and detailed rules of activities, etc [10].

(2) Business Logic Layer(BLL): It mainly uses the server to complete the application logic function of the client. Mainly responsible for the operation of the data layer. It is the process of combining some data layer operations, including accessing, extracting, modifying and deleting data in the database. The business layer is above the data access layer, which means that the business layer calls the classes and objects of the database. The business layer accesses the data of the presentation

layer and transfers it to the data layer. In ASP.NET, this layer can use SqlClient to fetch data from SQL Server database, and transfer the data of data layer to business layer in the form of data set through ADO.NET. The business layer processes this data and sends it to presentation layer for display. The business layer database of the ideological and political education network platform in colleges and universities includes the construction of four subsystems: student work management system, document resource management system, student community forum exchange system and information push system [8].

(3) Presentation Layer: It mainly completes the interaction between users and the background and the output function of the final query results. Users access the presentation layer after being verified by the Browser. The presentation layer is divided into administrator interface, teacher interface and student interface. The presentation layer is built on the basis of MVC model by using HTML+CSS+JavaScript language and server script on the development framework of ASP.NET.

## 4 FUNCTION REALIZATION

### 4.1 Student side

Students can log in to the system after passing the security verification of the server by inputting their student ID and password. The main page of the student terminal is divided into the following modules, namely,

social practice module, news highlights module, excellent article module and communication forum module. In the social practice module, students can read the outstanding achievements of successful practice activities, including photos, videos and audio related to the activities. If a student organization intends to hold a new ideological and political practice activity, it can log in to the application portal of this module, download the required application forms, and submit them to the system for review. After the activity is approved, you can upload publicity information through the publicity module in the social practice module to conduct campus publicity and recruit new students. Extracurricular ideological and political education practice activities on campus include ideological and political education, patriotism, excellent traditional culture and other related caring volunteer activities, lectures, knowledge contests and debate competitions. The establishment of social practice module can not only improve students' own ability, but also strengthen students' attention to ideological and political theory, the understanding of China's excellent traditional culture and the cultivation of patriotism. By clicking on the news highlights module, students can read all kinds of hot events and major international events and news, and expand their extra-curricular ideological and political knowledge [5]. Click on the Excellent Articles module, and students can read articles about the advanced deeds of outstanding students on campus, excellent papers on ideological and political thought, etc. At the same time, in the excellent articles module, an online essay entry is set up, and students can submit their articles for review. In the ideological and political exchange forum module, everyone can communicate and express their opinions. Teachers and students, students and students can conduct political and academic exchanges, discuss and exchange current focus events, and communicate with each other, which not only strengthens mutual exchanges, but also enhances students' learning interest and learning style. In this module, ideological and political education has changed from simple classroom ideological and political education to a more diversified form, which is more acceptable to the majority of students. The communication forum module of ideological and

political education platform is a highly interactive space. In subtle communication, students can be actively guided to solve problems in life and cultivate their interest in ideological and political study [3].

## 4.2 *Teacher side*

Teachers log in to the system by entering the account number and password, and after passing the security verification of the server. The teacher side main page is based on the student side main interface, adding new management functions. Teachers need to sort out internal resources, integrate data, and realize the standardization of information management of ideological and political network platform. Teachers review, maintain and update the articles, activity application forms and other contents uploaded by the student side, timely excavate and transfer the latest theoretical research results and practical trends, and timely convey the educational content of the best of college students to the platform, to express positive and positive voices. For the social practice module, teachers should update and maintain the relevant forms for uploading application materials of school activities in time [1]. Teachers also need to browse the exchange forum module regularly, delete inappropriate speeches, warn and blacken relevant authors, and purify the environment of the exchange forum of ideological and political education platform. When teachers browse the exchange forum, they should always pay attention to students' suggestions on the construction of ideological and political education on campus, summarize the suggestions and submit them to the superior leaders for reading. The forum module has made great contributions to the development of ideological and political education on campus. According to the characteristics of the network ideological and political education platform, doing a good job of demand research and feedback is an important measure to promote the effectiveness of ideological and political education platform, and also an important guarantee to promote the sustainable development of the network ideological and political education platform. Among them, the code for realizing the download function of the relevant forms of activity application materials is shown in Figure 5.

```

String fn = strName;
string filePath = strPath;
FileStream fs = new FileStream(filePath, FileMode.Open);
int number = (int)fs.Length;
byte[] bytes = new byte[number];
fs.Read(bytes, 0, bytes.Length);
fs.Close();
Response.ContentType = "application/octet-stream";
Response.AddHeader("Content-Disposition", "attachment;filename="+Http
Utility.UrlEncode(fn, Encoding.UTF8));
Response.BinaryWrite(bytes);
Response.Flush();
Response.End();
MessageBox.Show ("Download succeeded!");

```

Figure 5: Download function implementation

## 5 CONCLUSIONS

The network platform of ideological and political education in colleges and universities is specially designed and developed for the current reform of ideological and political education in colleges and universities. It has the application functions of enriching educational forms, enhancing the interaction of ideological and political education on campus, and publicizing national ideological and political education. The platform effectively transforms the traditional, single indoor ideological and political classroom into a comprehensive ideological and political education classroom that is not limited by space and time. It integrates the functions of propaganda, communication and interaction, and feedback of ideological and political education opinions, and can almost meet the various learning needs of students, with a high degree of interactivity and sharing. This paper studies the disadvantages and problems existing in the current ideological and political education in colleges and universities, and at the same time uses ASP.NET to study the platform construction of ideological and political education network in colleges and universities. As a new thing, the network platform of ideological and political education is still imperfect in many aspects, which needs further research and improvement. How to continuously improve its functions and contents in combination with the actual situation, and realize the functions of serving students, educating people in all directions, and leading thoughts, also requires the ideological and political workers to constantly think, explore and study.

## REFERENCES

- [1] He Hui (2016). Construction of Ideological and Political Education Network Platform in Hubei University of Education under the Background of Wisdom Campus. Hubei University of echnology.11.
- [2] Huang Yuchun (2016). Application Research and Practice of MVC Framework in ASP.NET.Journal of Shangqiu Normal University.08.
- [3] Huan Meili (2018). Construction of Ideological and Political Education Network Platform in Smart Campus Environment. Automation & Instrumentation.08.
- [4] Li Juan, Li Jiayi (2020). The Present Situation and Optimization of Ideological and Political Education in Colleges and Universities under the Influence of "Ideological and Political Education in Curriculum". Education Forum.07.
- [5] Liu Chao (2008). Analysis and Design of Network Assisted Instruction Platform Based on ASP.NET.Journal of Yulin Normal University (Natural Science).11.
- [6] Song Guangjun (2018). Feasibility Analysis of Constructing Network Platform of Ideological and Political Education in Colleges and Universities in "Big Data" Era. Ideological and Political Education Research.34(2): 155-157.
- [7] Wu Guangxi (2015). Research on Network Platform Construction of Ideological and Political Education in Colleges and Universities Based on Web3.0.China Agricultural Education.05.
- [8] Zhang Ying (2011). Development and Application of Information Technology Teaching Platform Based on ASP.NET Technology. Tianjin Normal University.06.
- [9] Zhou Jun (2015). Research on the Construction of Network Ideological and Political Education Platform in Colleges and Universities Based on E-Class. Office Informatization.09.



- [10] Zhu Bangming (2015). Design and Implementation of Student Information Management System Based on MVC and ASP. NET. Jilin University. 06.

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