



Construction and Application of Online Teaching Platform for Ideological and Political Content of Investigation Course Based on Python

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Abstract

In order to train preparatory investigative talents with excellent political quality for our investigative organs, the author of this paper develops an online teaching platform for ideological and political education of investigation courses based on the combination of Django back-end framework of Python language and Vue.js front-end framework. The platform adopts case analysis, current affairs news discussion, and self-test of question bank to consolidate various teaching methods, reform ideological and political education and improve teaching methods, so as to promote ideological and political elements to be included in the investigation course education, further improve students' ideological and political level, and realize the goal of all-round education of all staff in the whole process. Infiltrate the cultivation of students' quality into the cultivation of knowledge and skills, stand firm in the main position of ideological and political education, and build ideological and political barriers for students in the critical period when they form their world outlook, values and outlook on life. The research and development of this platform is conducive to all kinds of police, political and legal colleges to implement the socialist core values and help achieve the educational goal of cultivating outstanding talents.

Keywords: *Python; Investigation; Curriculum ideological and political education; Online teaching; Network platform construction*

1 INTRODUCTION

General Secretary Xi Jinping stressed at the National Conference on Ideological and Political Work in Universities that the foundation of the construction of "curriculum ideological and political" is "curriculum", and the focus is "ideological and political". As a new concept of curriculum education, curriculum ideological and political education aims to organically integrate professional knowledge teaching with ideological and political theory training, explore the ideological and political elements contained in the curriculum, and realize the educational purpose of "cultivating people by virtue" in the construction of the overall pattern of all staff, the whole process and the whole curriculum. The unity of talent cultivation and moral cultivation is not only the core goal and task of China's colleges and universities, but also another mission entrusted by the party and the state to colleges and universities in the new period. In June, 2020, the Ministry of Education's Guiding Outline of Ideological and Political Construction in Colleges and Universities (hereinafter referred to as "Outline") required to comprehensively promote ideological and political construction in the curriculum. It is pointed out that we should focus on strengthening students' ideals and beliefs, take loving the party, patriotism, socialism, people and the collective as the main line, and optimize the course ideological and

political content supply around political identity, feelings of home and country, cultural accomplishment, awareness of the rule of law and moral cultivation. Before the concept of "ideological and political course" was put forward, all kinds of police, political and legal colleges mainly relied on ideological and political courses to complete the ideological education for students. This single mode of ideological education easily led to the isolation of ideological and political courses from the teaching activities of professional courses, resulting in "island effect" and other problems. It was difficult for students to closely link the content of ideological and political courses with the content of their own investigation courses, resulting in many problems such as incomprehension, neglect and non-study, and it was difficult for ideological and political education to be implemented. Investigation is mainly to systematically study the basic principles of criminal investigation, the concept, task, subject and object of criminal investigation and other basic content theories. It is the backbone course and compulsory course for criminal investigation majors in police, political and legal colleges in China to cultivate investigative talents. In the author's opinion, in the process of integrating ideological and political education into the key course of investigation, we can't simply output and interpret the ideological and political content theory of investigation discipline in class, ignoring the immediacy of ideological and political education

elements. The selected ideological and political education elements can't keep pace with the times with the current situation of the country, but only stay on the superficial theoretical narration, divorced from reality, which makes students feel weak in the substitution of ideological and political content [3]. The society has entered the new century of globalization and informatization. In the new century, the growing maturity and perfection of Internet information technology will surely lead to profound changes in the social, economic, political and cultural structure, and the education industry will also lead to a fundamental change. The wave of education reform has brought new impact to police higher education. Police education is also in urgent need of establishing a training mode that is suitable for the education requirements of investigative talents in the new information age. Internet information technology, because of its convenience, rapidity and immediacy, is helpful to update and supplement the ideological and political content of investigation course in time [4].

According to the above analysis, the author of this paper believes that the construction of online teaching platform of ideological and political content of investigation course based on Python conforms to the trend and comes into being. This platform is a platform that can help teachers to perfect and improve the teaching mode with information technology, and it is the product of the times when information technology is effectively integrated into the teaching system of investigation course. The Python-based online teaching platform of ideological and political education in investigation course adopts case analysis and current affairs news discussion, and the self-test of question bank consolidates various teaching methods to enhance students' learning enthusiasm and initiative. It combines ideological and political elements with criminal investigation professional knowledge, specific social problems and hot cases, and helps students establish a correct political direction in silence, strengthen police professional ideals and professional ethics, and enhance professional identity. Pay attention to the integration of ideological and political content and professional knowledge, and keep the ideological and political content constantly updated. This platform realizes all-staff, whole-process and all-round education through the online teaching of ideological and political education in the course of investigation, and trains preparatory investigation talents with excellent political quality for our investigation organs.

2 KEY TECHNOLOGY INTRODUCTION

2.1 Python

Python is a literal translation, object-oriented computer program development and design language. It was created and invented by Guido van Rossum in 1989 and released in 1991. The advantages of Python are clear and concise syntax, and powerful and rich class libraries. At the same time, Python is also nicknamed glue language, mainly because it can easily connect various modules made in other development languages (such as C/C++). Python quickly generates the prototype of the program, and writes some programs with special requirements in other languages. Python, as a common explanatory language, executes programs when the high-level computer translation language is machine language. There are two ways of translation: compilation and interpretation. Usually, it takes different time for translation execution to distinguish the two methods. The machine language file compiled with compiled programming language must need a compilation process, such as .exe file, which can be compiled only once, but can be executed many times. In the future, you only need to run the .exe file to finish running this program, and there will be no compilation process in the future. Python has the essence of pseudo-code, and its syntax is concise, simple and easy to understand. A person who can't write a program can fully understand Python after simple study.

2.2 Django development framework

Django platform provides perfect template style, and has the function of dynamically creating background management interface and object relation mapping mechanism. With Django, rapid design can be realized, and Web applications with MVC level can be developed. Some notable features of Django platform include entity mapping. To flexibly define data models in Python classes, developers need the help of object-related mapping mechanism in Django. They don't need to write complicated SQL statements, simplify development work, and access APIs dynamically. These are the concrete manifestations of rich functions of Django. The URL distribution design can be very concise and beautiful in Django, and there will not be a bunch of incomprehensible and messy characters in the links. Django's built-in template can be extended arbitrarily, and the model layer, control layer and page template can be coded completely independently.

Django modifies the traditional MVC design pattern to establish a new MTV pattern, which divides the View into two parts: View module and Template module. The MTV pattern is similar to MVC pattern in nature, as shown in Figure 1. The Model layer of MTV, like the definition in MVC, is used to build data tables. Template

layer mainly combines data with HTML language. The View layer is responsible for the realization of the actual business logic, separating the dynamic logic processing from the static page presentation, while the Model adopts

ORM technology, abstracting relational database tables into object-oriented Python classes, and converting table operations into class operations, thus avoiding the complicated SQL statement writing [8].

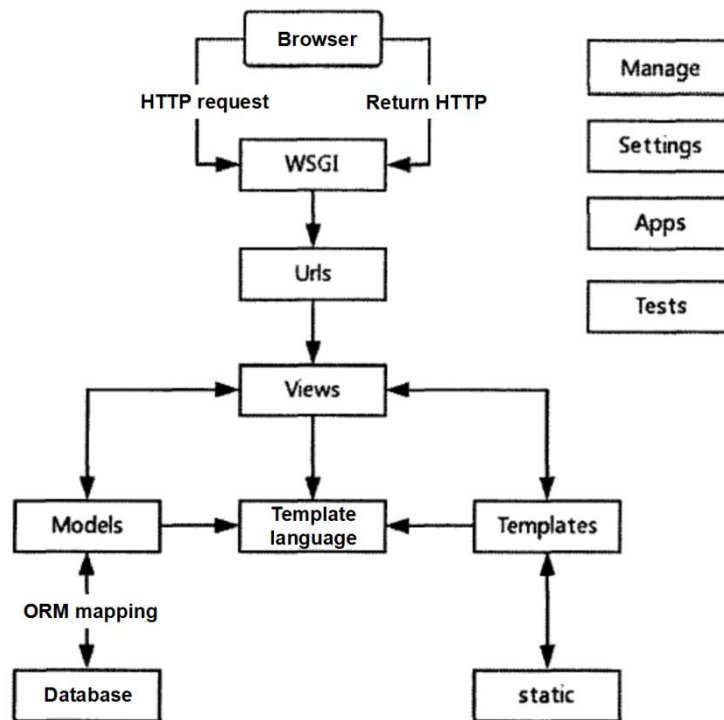


Figure 1: Django architecture diagram

2.3 *Vue.js*

Vue.js is a progressive framework for building user interfaces. Unlike other heavyweight frameworks, Vue adopts the design of bottom-up incremental development. The core library of Vue only focuses on the view layer, and it is very easy to learn and integrate with other libraries or existing projects. On the other hand, Vue is fully capable of driving complex single-page applications developed with single-file components and libraries supported by Vue ecosystem. Vue.js will automatically respond to the changes of data, and modify all the data and view contents bound together according to the binding relationship written by users in the code in advance. Vue.js splits various modules in a single-page application into individual components through component-based development. We only need to write various component tags in the parent application first, and write the parameters to be passed into the components in the component tags (just like passing in parameters to functions, this parameter is called the attributes of the components), and then write the

implementation of various components separately, and then we can complete the application [1].

2.4 *Development environment*

In this paper, the author briefly introduces the related technologies of platform development and use. This paper studies the development of an online teaching platform for ideological and political education of investigative courses based on the front-end framework of Vue.js 3.0 and the back-end framework of Django 2.0.13 on Windows 10. This scheme adopts SPA single-page application design, the system is developed in Python version 3.7.4 language, MySQL 5.7.27 database and Redis7.0 database are used as database caches, and the online system is deployed by Nginx, and Django framework based on MTV (Model Template View) mode is built. The front-end coordination technology is Restful. When connecting Django with mysql database, we should change the default sqlite3 database into the settings.py configuration file under Django's myproject, and the operation code is shown in the figure below [6].

```
# Database
# https://docs.djangoproject.com/en/1.11/ref/settings/#databases
DATABASES = {
    'default': {
        'ENGINE': 'django.db.backends.mysql',
        'NAME': 'testcon',
        'USER': 'root',
        'PASSWORD': '123456',
        'HOST': '127.0.0.1',
    }
}
```

Figure 2: Replacing Mysql database implementation code

3 REQUIREMENT ANALYSIS

3.1 *Functional requirement*

The ideological and political teaching platform of investigation course aims at the different needs of students and teachers in police, political and legal colleges, and sets up student client and teacher client respectively. Student client is required to have three main functions: resource learning, self-test of test questions and personal center. Teacher client is required to be responsible for the maintenance and operation functions of resources such as screening, uploading, changing and deleting required by student client.

As far as learning resources are concerned, many ideological and political contents determined in the Outline can be integrated in the design of such courses. According to the overall design of curriculum ideological and political construction in the Outline, the author divides the key contents of curriculum ideological and political construction into five aspects, namely, political concept, legal concept, moral cultivation, cultural accomplishment and professional concept (as shown in Figure 3) [9]. According to these five aspects, the author designs four functional sub-modules of current affairs

news, case analysis, legal knowledge and traditional culture propaganda when designing the functional module of student's client-side resource learning. Through reading the current news module, students can have political insights and cultivate political ideas, which will lay the foundation for students to become builders and successors of socialist investigation. Case analysis module can not only enable students to master the relevant knowledge and methods of investigation, but also feel the thinking, will quality and professional quality of law enforcement case handlers through typical cases of good and bad investigation case quality, which can enhance the professional concept and moral cultivation of investigation preparation talents, enhance the ideological and political appeal, enhance the professional identity of investigation work, and establish feelings for the people and firm belief in obeying the police. It is an inevitable requirement of ruling the country according to law to study legal knowledge and cultivate the concept of rule of law through the module of legal knowledge. In the traditional culture propaganda module, Chinese traditional culture is widely publicized, which helps students learn and master all kinds of ideological essences and establish a correct world outlook, outlook on life and values.

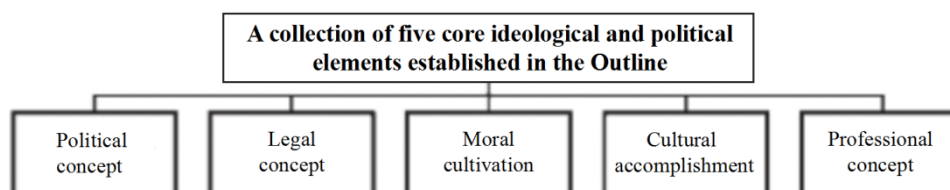


Figure 3: The overall framework of ideological and political elements established in the Outline

3.2 *Global design*

This platform is B/S architecture. The user first sends a request to the server, applies to the server for returning the result, and renders it in the browser to show it to the

user. The architecture mode adopted in the background development of this system is Django framework based on MTV mode, and the technology of front-end cooperation is Restful. The system architecture of the online teaching platform of criminal investigation course is shown in Figure 4 [7].

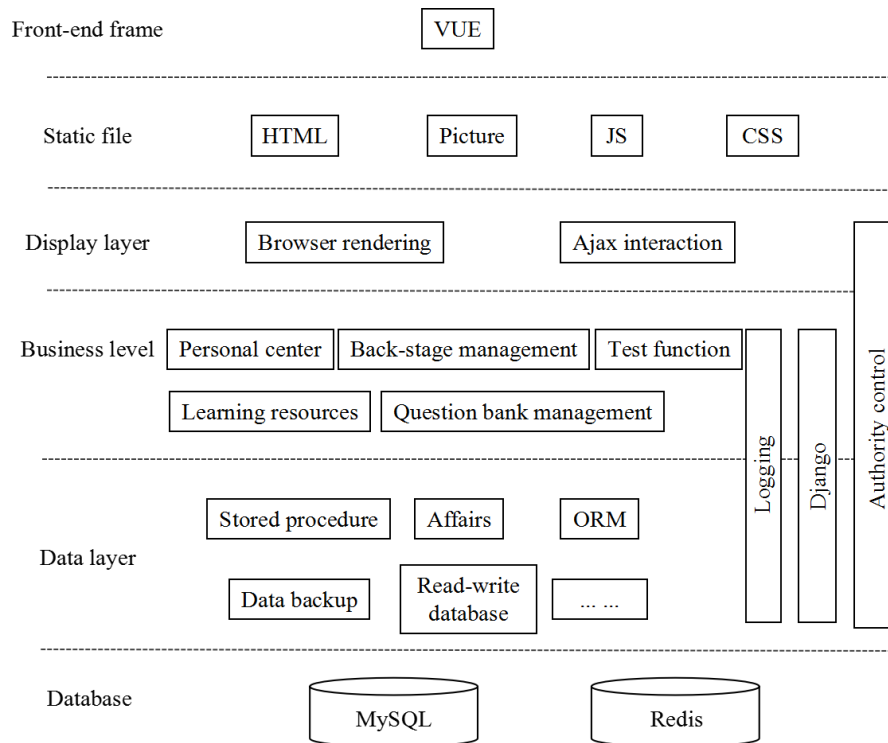


Figure 4: System architecture diagram

The front-end Vue framework is used to package data and business logic into Vue modular components, and the Webpack package tool is used to package the Vue components into static files such as HTML, CSS, JavaScript, etc., which are uploaded to the server, and the browser is used for rendering and Ajax request interaction. The display layer is the functional interface that the system directly displays to users. It mainly makes requests from users, and the system returns the corresponding request results to give real-time feedback to users. The business layer provides interfaces to obtain HTTP requests and send HTTP responses, and uses uWSGI module of Django to realize the deployment of Nginx server. The business layer is responsible for the deployment of personal center, background management, testing functions, resource learning, question bank management and other functions. The data layer is used to store system data and user behavior data, mainly storing learning resource data, question bank data, student user behavior data, etc. in the database, and student user's answer records and learning duration records are also stored in the data layer. The administrator of the system realizes the interaction between the front-end display layer and the database by operating the basic information of users, user rights, user grouping, etc., and the teacher users by operating the resource management and question bank management of student users. Use ORM technology of database Model

to read and write MySQL database; Using MySQL technology simplifies the operation of the database and greatly improves the maintainability of the system. Besides MySQL, this system also uses Redis to handle the data cache when the data is too large.

4 FUNCTION IMPLEMENTATION

The ports of the online teaching system of ideological and political education in this investigation course are divided into student client and teacher client.

4.1 Student client

Students log in to the system through the input of student ID and password. There are three main modules, including resource learning module, self-test module of question bank and personal center module. The resource learning module also includes four functional sub-modules: current affairs news, case analysis, legal knowledge and traditional culture propaganda. When students learn this part of resources, the system sets up a comment area under each article, so that students can discuss, communicate and express their thoughts at any time, and enhance their dialectical and rational thinking. Students can collect their favorite articles when they see them. As shown in Figure 5 [5].

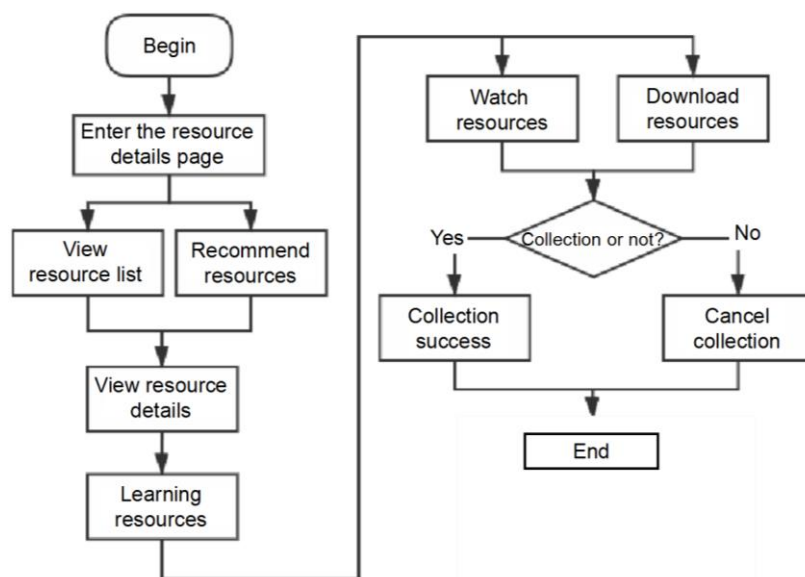


Figure 5: Resource details design flow chart

By clicking on the current affairs news section, students can see the news articles of the major national and international events that happened the previous day or a few days ago, and the latest important principles and policies of the party and the government, so as to guide students to understand the world situation, the national conditions, the party situation and the people's feelings, understand the domestic situation, and cultivate their political awareness. Click on the case analysis section, students can see all kinds of typical outstanding and warning cases of investigation. These cases analyze the psychological activities of criminals and investigators, describe the details and results of investigators' investigation cases, combine ideological and political elements with criminal investigation expertise, specific social problems and hot cases, and analyze and examine related social phenomena. By clicking on the legal knowledge module, students can check the newly updated "Criminal Procedure Law", "Procedures of Public Security Organs for Handling Criminal Cases" and other relevant legal theoretical knowledge of investigation, so as to cultivate the concept of the rule of law and abide by the legal provisions, which is the inevitable requirement of governing the country according to law. By clicking on the traditional culture propaganda module, students can watch the display videos and related propaganda articles of various activities held by the school, such as the celebration of traditional festivals and lectures on traditional culture, so as to promote the propaganda of traditional culture and enhance their cultural literacy. After watching the learning resources, the student users will review the recently learned content, click the self-test module of the question bank to answer questions and submit them, and the system will automatically score according to the standard answers.

4.2 Teacher client

By logging in to the teacher client interface, teachers can see four main modules: learning resource management, question bank management, student learning record and personal center. Teachers can screen, upload, update, change and delete all the resource articles of the resource learning module on the student client and the test questions and answer resources of the test bank. For the resource selection of the resource pool, the requirement is related to the comprehensive content of the recently updated resource learning. And we can check the students' ideological and political content learning situation of investigation through the data stored in the data layer, such as the answer records and study duration records of the students' users in the background of the system [2].

5 CONCLUSIONS

In order to train preparatory investigative talents with excellent political quality for our investigative organs, the author of this paper develops an online teaching platform for ideological and political education of investigative courses based on the combination of Django back-end framework of Python language and Vue.js front-end framework. Although online teaching of ideological and political course has many advantages, such as convenience, rapidness and immediacy, it can't completely subvert and replace traditional teaching. Therefore, in the future teaching process, teachers can adopt online and offline mixed teaching mode. Ideological and political education of investigation course plans to integrate ideological and political education in colleges and universities into all aspects of course teaching reform, so as to realize the whole process and all-round education. For students, they should learn

from other people's theories and absorb reasonable elements, and these theories should finally be combined with the specific problems of investigation practice. However, the ideological and political content teaching platform of this investigation course is not to transform the investigation course into an ideological and political course, but to moderately and properly integrate the content of ideological and political education into the teaching. Following this line of thought, it is not necessary to add all ideological and political elements to the teaching content in the subsequent development of the same type of system. Each professional course embeds ideological and political elements into the teaching content, highlights the characteristics of the course, seeks common ground while reserving differences, and finally complements the teaching of ideological and political courses to build a good teaching network platform for cultivating outstanding investigative talents.

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