Design and Application of Online Simulation Training System for Mass Entrepreneurship and Innovation Talents Under the Background of Internet Plus

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Abstract. Strengthening innovative and entrepreneurial education and cultivating innovative and entrepreneurial talents are the new requirements of the state for innovative construction, and are the necessary ways to reform the traditional college education and improve the comprehensive quality and employment rate of graduates, so as to promote college students' integration into the wave of "mass entrepreneurship and innovation". This paper makes a profound analysis from the significance and present situation of innovation and entrepreneurship education in colleges and universities. Based on the background of the double innovation development, this paper discusses the construction method of innovation and entrepreneurship training with innovation as the core, students as the main body and market-oriented as the goal. The B/S framework is applied to Python language and Django framework to develop the online simulation training platform for double-creative talents, so as to optimize the training means, training mode and practice platform in colleges and universities, and put forward suggestions for implementing the new mode of double-creative talents training in colleges and universities, which will provide strong support for colleges and universities to cultivate double-creative talents.

Keywords: Internet+education · mass entrepreneurship and innovation simulation training · Python · Django

1 Introduction

In order to deepen the reform of innovation and entrepreneurship education system in colleges and universities and give full play to the radiation effect of high-quality resources in colleges and universities, the state has put forward policies such as "mass entrepreneurship, innovation for all" and "entrepreneurship drives employment" to encourage college students to innovate and start their own businesses. Innovative talents are the foundation and key for colleges and universities to promote the construction of a strong educational country, and also the core goal of realizing a strong educational country. The relationship between innovation and entrepreneurship is inseparable and interrelated, and any entrepreneurial behavior is inseparable from the support of innovation consciousness.

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The spirit of innovation needs to be reflected through entrepreneurship. Not only that, in mass entrepreneurship and innovation education, innovation is the prerequisite and necessary condition of innovation and entrepreneurship education, while entrepreneurship education is a kind of practical behavior based on the innovative education concept, and the two must interact and influence each other [7]. As the mass entrepreneurship and innovation education mode requires students to gradually transform their knowledge, culture and professional skills into productive forces needed by the society, and make pioneering and innovative efforts, it requires colleges and universities to upgrade the original education mode and make an in-depth analysis of the relationship between innovation and entrepreneurship. Therefore, colleges and universities, as the main positions of innovative and entrepreneurial talents training, should integrate all kinds of educational resources, build innovative and entrepreneurial platforms and mechanisms, create innovative and entrepreneurial atmosphere, pay more attention to the cultivation of students' practical ability and the improvement of their comprehensive quality and professional ability, broaden their horizons and strengthen their innovative ability and entrepreneurial success rate [2]. The steady development of domestic market economy, the continuous improvement of industrial optimization, and the continuous deepening of national entrepreneurship policies have created more opportunities, better entrepreneurial environment, and more favorable platforms and services for college graduates. In this social background, more and more college graduates choose entrepreneurship as their future career development direction, which not only has a broader career direction, but also can reduce the employment pressure brought by the competition in the talent market. Improving college students' innovative and entrepreneurial ability is to enable them to have significant entrepreneurial and employment advantages, and to participate deeply in social and economic construction and national development. On the basis of college students' ability to realize self-worth, they can also provide intellectual support for innovation to drive the healthy development of social economy. College students can be used as providers of effective suggestions for upgrading and transforming the social and economic structure, and make use of the innovative thinking vitality of college students in the new era to inject new impetus and new elements into the healthy development of the social economy [6]. Although the mass entrepreneurship and innovation education in colleges and universities has made some achievements, it is still far from the ideal goal, and there are still many problems in the mass entrepreneurship and innovation teaching process, such as curriculum system construction, talent training standards, mass entrepreneurship and innovation teaching mechanism, and entrepreneurial practice platform, all of which have become important obstacles to the in-depth innovation and entrepreneurship education reform in higher vocational colleges [5]. To solve these problems, it is necessary to introduce advanced ideas and technologies to reform the mass entrepreneurship and innovation education. The author of this paper believes that the Internet technology is developing rapidly, and "internet plus" is more and more integrated into the education industry, resulting in online curriculum education platforms such as Netease Open Class and Tencent Classroom. In the process of building innovation and entrepreneurship courses, colleges and universities should also attach importance to and introduce Internet technology, gradually set up an online teaching and training platform, and incorporate high-quality related resources from schools and the Internet,

so that students can learn knowledge and improve their innovation and entrepreneurship ability through this way.

Based on the above situation, this paper will apply Python language and Django framework to develop a B/S-based online simulation training platform for mass entrepreneurship and innovation talents. The traditional classroom theoretical entrepreneurship training course will be improved and moved to the Internet platform, so that teachers can conduct innovative entrepreneurship training for students in stages through various forms. In the early stage, the latest innovation support information and basic entrepreneurship courses will be delivered to students through the innovation information center and entrepreneurship learning system. Let students know the knowledge, methods and policies of innovation and entrepreneurship. In the middle stage, let students know their entrepreneurial goals and methods through the entrepreneurial planning system. In the later stage, let students independently conduct online simulation entrepreneurship through the entrepreneurial practice system to experience the whole entrepreneurial process. This phased training mode helps students to carry out mass entrepreneurship and innovation practical training step by step, and makes the training course play its real role.

2 Technical Overview

2.1 Python

Python is a high-level, interpretive-compiler, interactive and object-oriented minimalist scripting language. In the development process, you can run programs directly from the source code without compiling into binary code. As shown in Fig. 1, it is the source code execution process of different languages. Python interpreter directly converts the source code into the intermediate form of bytecode inside the computer, and then translates it into the machine language used by the computer and runs it. Python is a highly readable language. Compared with other languages, it gets rid of the use of English keywords and some special punctuation marks, and has more grammatical features. The interactive nature of Python means that it can directly execute code after a Python prompt ">>>". Python's object-oriented features show that it supports object-oriented style or programming technology with code encapsulated in objects [1]. Python is friendly to junior programmers, and it supports a wide range of application development. Python source code follows GPL (GNU General Public License) protocol. Python has many advantages, such as relatively few keywords, simple structure, and a well-defined grammar, which is easy to learn and write. Python code definition is clearer and easier to understand. Python's success lies in its high maintainability of source code. One of the biggest advantages of Python is that it has rich libraries, cross-platform universality and good compatibility among various operating systems. Python provides the interface of commercial database for all programs.

2.2 Django

Django is an open source and free web application development framework written in python language, and follows MVT design pattern. In Django, the part of the controller receiving user input is handled by the framework itself, so more attention is paid

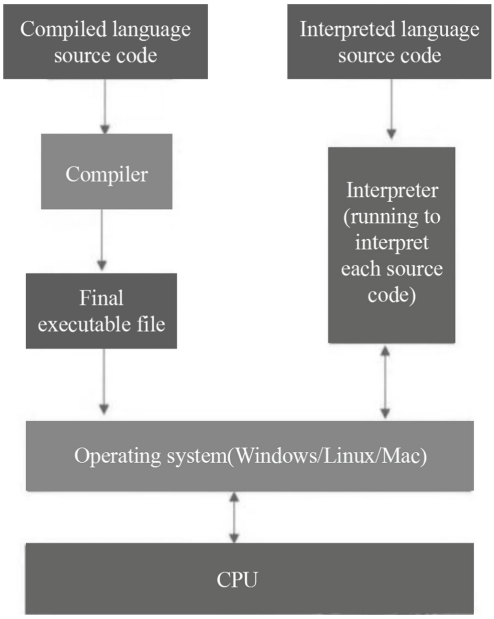

Fig. 1. Source code execution process

to Model, Template and Views in Django, which are collectively called MTV mode. Figure 2 shows the Django structure diagram, where M represents the model, that is, the data layer, which deals with all transactions related to data, that is, how to access, verify validity, what behaviors are involved, and the relationship between data, etc. T stands for template, that is, presentation layer, which is responsible for determining related processing and presentation, that is, how data and application files are displayed in pages or other types of documents. V stands for view, which can also be said to be the business logic layer. This layer contains how to logically access the model and retrieve the appropriate template, in which we can interact the model with the template. In recent years, because of the rapid development of Django, it has been more and more widely used. The main purpose of Django's design is to make it easier and faster to develop database-driven websites [4]. It not only pays attention to the reusability of code, but also many components can conveniently provide services for the whole framework in the form of plug-ins. Django contains many third-party plug-ins with rich functions, so programmers can easily develop their own toolkits, which also enhances the scalability of Django. It also emphasizes the principle of rapid development and Do Not Repeat Yourself. With python class inheritance, a few lines of code can realize a powerful and dynamic database operation interface (API). If necessary, ORM object relation mapping can be performed. This mode realizes the decoupling between data model and database, that is, the design of data model does not need to depend on a specific database, and the database can be easily replaced by simple configuration. Object-relational mapping (ORM) is a technology to solve the incompatibility between object-oriented and relational databases. Simply put, ORM automatically persists objects in programs into relational databases

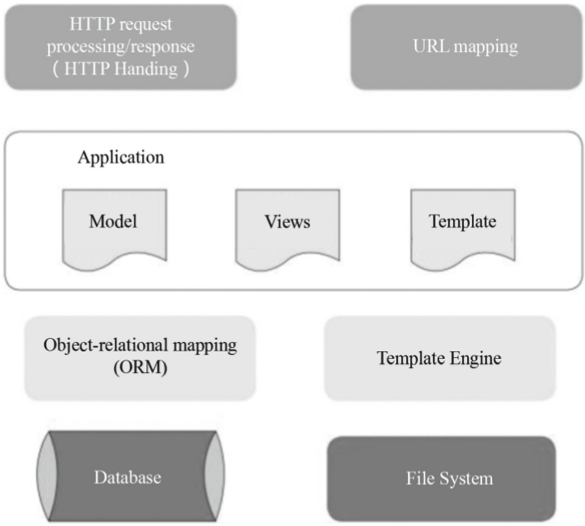

Fig. 2. Django structure diagram

by using metadata describing the mapping between objects and databases. ORM acts as a bridge between business logic layer and database layer.

2.3 Development Environment

The hardware environment of the online simulation training system is Windows10 operating system, and the software environment includes Python interpreter, pycharm, Django, mysql, Nginx and uwsgi. Next, this development environment is briefly outlined. First, enter python official website to download Python 3.10.1, customize the installation path for installation, run cmd and enter Python-V to get the corresponding version, and add Python variables to the environment variables. On the cmd command line, enter the command python", and the added variable information will be displayed. Unzip Django, there is a setyp.py file in Django directory, open the running window for installation, and then configure the system variable path = C:\Python25\Scripts; C:\Python25\lib\site-packages\Django\bin, test whether Django is successfully installed: First check whether C:\Python25\lib\site-packages\django\bin exists, then create a project Django-admin.py After running manage.py, enter http://127.0.0.1:8000/ in the address bar of your browser to test it. Then download and install MySQL, create the corresponding database, and set the user name, password and port number. Finally, download and install Nginx and uwsgi, put the extracted uwsgi into the /usr/local/bin directory, and write the uwsgi startup file, which uwsgi grants the execution permission to put into the /etc/init.d file. Write the configuration file /etc/uwsgi.in and modify the main configuration file/usr/local/nginx/conf/nginx.conf. The installation configuration of the above environment provides feasible support for the development of online simulation training system.

3 Requirements Analysis

3.1 System Requirements Analysis

According to the analysis of the present situation of "mass entrepreneurship and innovation" education and teaching, it is found that there are many problems in the "mass entrepreneurship and innovation" teaching in colleges and universities. Based on the design of the online simulation training platform for mass entrepreneurship and innovation talents, the training teaching is divided into three stages according to the training needs: the early stage of learning about innovation and entrepreneurship, the middle stage of cultivating innovative thinking and ability, and the later stage of experiencing the process of innovation and entrepreneurship. According to the above three stages, the system is designed into four subsystems: Innovation Information Center, Entrepreneurship Learning System, Entrepreneurship Planning System and Entrepreneurship Practice System [8]. The main users of the system are teachers and students, so two clients-student client and teacher client are designed. The role of teachers in the simulation training system is to guide students to understand innovation support policies, learn entrepreneurial knowledge, master entrepreneurial policies and entrepreneurial processes; help students exercise innovative and entrepreneurial thinking and analytical ability; encourage students to complete entrepreneurial practice and improve the probability of successful entrepreneurship, so as to change educational ideas and methods. In this system, students can learn about the entrepreneurial process and related policies and methods, cultivate their own entrepreneurial thinking, experience the establishment, operation and management of enterprises, and improve their innovative entrepreneurial ability through online simulation training, thus laying a good foundation for future entrepreneurial employment. The teaching mode of online simulation training in colleges and universities is helpful to change the current situation of "mass entrepreneurship and innovation" talents training and build a perfect education system.

3.2 Global Design

This system follows B/S architecture and MVC design pattern. Because the server uses Django framework, it is divided into three parts: Model, Template and Views. The specific interaction is shown in Fig. 3: The user sends the request to the web server Nginx through the browser, Nginx judges the type of the request, if it is a static file, it is directly retrieved and returned to the user, otherwise, the request is forwarded to uWSGI interface for processing, and uWSGI sends the request to Django framework for processing. When the controller in Django receives the request, it will call the __init__ method of the middleware to complete the initialization of the middleware. Before processing the request, it will call the proces_request (request (request) and return the None or HttpResponse object. Through URLconf matching, confirm which view the request is processed by. Process_view is called before processing the view, and returns a None or HttpResponse object. The view received request. The Model interacts with the database to obtain and process data, and the model embeds ORM framework to realize object-oriented operation of the database. Template engine, which can display data dynamically and return HttpResponse object or JsonResponse object. The view returns response after

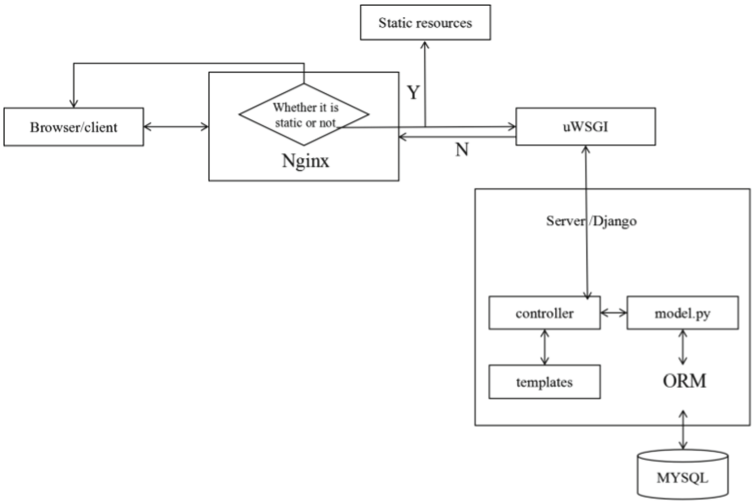

Fig. 3. Overall architecture diagram

processing the response, and all responses will call process _ response (request, response) before returning to Django, and return the HttpResponse object unless special processing is done. (If the view throws an exception, call the precess_exception on each request), and return a None or HttpResponse object.

4 Functional Implementation

4.1 Student Client

All modules need the front-end to call the service-end program to complete the interaction, as shown in Fig. 4, which is the API code of view layer written by Django.

Innovation information center: Students can learn about the latest innovation support policies and projects of the country and the region where universities are located, as well as the projects and support set up by our school to encourage students' innovation, so that students can give full play to their own advantages and actively think, explore and innovate in a good innovation support environment. This module creates a good atmosphere for encouraging students' independent innovation and later entrepreneurial learning, stimulates students' motivation for independent innovation, and enables them to improve their innovative and entrepreneurial spirit, and carry out mass entrepreneurship and innovation training with enthusiasm.

Entrepreneurship learning system: This system has three functional modules, namely, entrepreneurship evaluation, entrepreneurship classroom and entrepreneurship forum. Among them, entrepreneurship evaluation includes entrepreneurship potential test, entrepreneurship thinking test, entrepreneurship psychology test, type 9 personality test, entrepreneurship success index test, etc. Students' independent evaluation system will give corresponding results, which will help students to have a preliminary

```
from django.shortcuts import render,HttpResponse
import json
import requests
def index(request):
    return HttpResponse('Index')
def fp(request):
    if request.method=='GET':
        return render(request, 'demo.html')
    elif request.method=='POST':
        remark = request.POST.get('remark')
        url = 'https://v1.alapi.cn/api/music/search?keyword='+remark
        reponse=requests.post(url=url)
        b = reponse.text
        return render(request, 'test.html',{'data':b})
```

Fig. 4. The API written in Django

understanding of self-employment. Entrepreneurial classroom mainly teaches knowledge about innovation and entrepreneurship through text materials and video explanations, including entrepreneurial knowledge (entrepreneurial guide, entrepreneurial policy, entrepreneurial marketing, entrepreneurial base, etc.), enterprise research and management, etc. [3]. Students can learn about entrepreneurial process, entrepreneurial methods and related policies by learning innovative entrepreneurial knowledge. In the entrepreneurship forum, students check the directory of entrepreneurship forum added by teachers, select the corresponding topic in the directory and click "view details" to view the detailed information of the topic, and then click Play to enter the study. This system is mainly aimed at the teaching stage in the early stage of practical training, so that students can have a preliminary cognition of entrepreneurship and initially develop innovative consciousness.

Entrepreneurship planning system: The system includes three modules: entrepreneurship proposition, entrepreneurship plan and case analysis. Entrepreneurial proposition is a proposition assignment issued by teachers. After students check the contents of the proposition, they answer the entrepreneurial proposition, and after teachers' review, they set the excellent proposition as a "recommended" proposition. After the recommendation, other students can check the content of "appreciation of entrepreneurial proposition" added by teachers in the "excellent proposition display" sub-module, and make comments or join the collection. Business plan is a business plan prepared by students according to the format and requirements stipulated in the business plan issued by the system, and submitted to teachers for approval. In the case analysis module, there are entrepreneurial cases sorted out by the teacher. Students click and view them, then analyze the cases and publish the analysis results for mutual discussion. According to this process, students can not only exercise their innovative thinking, but also clarify their entrepreneurial direction.

Entrepreneurship practice system: After completing the first two stages of study, students come to this system as entrepreneurs to conduct business simulation. This system

is designed based on man-machine collaborative interaction, and all conversations are set in advance. After entering this system, students first choose from the establishment of entrepreneurial projects, and the selected option system will automatically give corresponding dialogue feedback and the direction of the next step [10]. In this system, the whole enterprise life cycle is simulated, that is, incubation period, growth period, continuous operation period, capital exaggeration period and recession period. From finding a project in the gestation period, registering a company to the management policy in the stable operation period to the coping strategy in the recession, students can experience the process of the start-up, application, management and recession of the whole enterprise. In the process, they can think and analyze how to choose the next step, which can better help students establish correct entrepreneurial ideas and learn more innovative entrepreneurial methods.

4.2 Teacher Client

Through the platform, teachers collect data, videos and cases in the three training stages to design the course, give guidance to students, review the students' practical learning achievements and put forward relevant suggestions. The role of teachers in the platform is to pass on the latest innovative policies and innovative thinking methods to students, pay attention to the cultivation of students' mass entrepreneurship and innovation thinking, strengthen the training of entrepreneurial skills, strengthen the combination of theory and practice, and create an atmosphere for students to learn independently. Let students understand the true meaning of entrepreneurship from entrepreneurial learning, absorb the experience and lessons from cases, avoid or take fewer detours, improve the success rate of entrepreneurship, cultivate students' innovative entrepreneurial spirit, improve their innovative entrepreneurial quality, and finally encourage and guide students to complete entrepreneurial simulation practice independently. Mass entrepreneurship and innovation training system permeates the contents and factors of entrepreneurship education into professional practice teaching, and sets up a relatively perfect innovation and entrepreneurship teaching and practice system according to the objectives and contents of entrepreneurship education [9].

5 Conclusions

Under the background of the new era, the innovation and entrepreneurship courses offered by colleges and universities are in line with the needs of social development and the national policy of mass entrepreneurship and innovation. Especially in the Internet era, it improves the integration of more high-quality resources for students' practical education, helps to alleviate the pressure of graduates' employment and improve their comprehensive quality, which is also the fundamental goal of educational activities. At the same time, the introduction of "internet plus" technology also optimizes the innovation and entrepreneurship curriculum, expands students' knowledge, stimulates their innovation and entrepreneurship motivation, and then drives the innovation and entrepreneurship atmosphere of the school. As successors of building a new era, the increase of college students' innovation and entrepreneurship ability will also help

them to seek development in the relatively good social atmosphere of innovation and entrepreneurship, show their comprehensive strength and increase employment for the society.

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