Students' Professional Attainment Evaluation Software Tool Based on WeChat

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Abstract. This paper designs and implements a student professional attainment evaluation software tool (WeChatPE) based on the WeChat platform. The attainment evaluation tool consists of three parts, namely the information collection module, the professional attainment evaluation module and the user management module. The information collection module includes student attainment information acquisition, student job seeking information acquisition, and position and teaching resource information acquisition. Student's professional attainment can be evaluated by obtaining the above three aspects. The specific evaluation content includes evaluation of the student's learning ability, work ability and overall ability. The User Management Module contains user registration and personal information management.

Background

With the advancement of science and technology, the requirements of the workplace for talents are gradually changing. For enterprises and companies, how to recruit a talent with strong learning ability and skills has become a matter of great concern of the companies. On the other hand, it is also very important for college students who are graduating to find a work that they are interested in and to be able to display their talents. College students' job hunting is the first step in their entry into society. If the first step is not taken well, it is likely to affect their future career development and planning [1].

Since the social development, online recruitment has become one of the mainstream recruitment methods. There are a lot of current recruitment websites, and most of the services provided by the recruitment websites are based on the B/S structure of search services. Users use the PC or mobile browser to access the website and search for their needs to achieve their goals. However, with the development of information technology, an emerging media is favored by people, that is, the WeChat public platform. At present, WeChat has become one of the most important ways for people to socialize, and college students are more widely used.

Due to the large number of current recruitment websites, many students blindly apply resumes to find jobs and find internships on various recruitment websites. However, some of them do not have enough knowledge about their professional attainment. They do not have an accurate position of their abilities. It is the purpose of this paper to help students locate their professionalism and find suitable internships or jobs. This article uses the developer mode of WeChat public platform to develop, which is convenient for users to access anytime and anywhere, saving users' time and energy, and providing users with high quality and convenient services.

Python is used as a high-level programming language for writing applications [2] and the advantages of Python is self-evident. The WeChat public platform has formed a marketing method of online and offline interaction [3]. WeChat also provides a set of front-end UI framework WeUI. It is a basic style library that is consistent with WeChat's native visual experience. Using WeUI in WeChat web development allows users to have the same visual effects as WeChat clients, making it easier for all WeChat users to use the developer's website, while at the same time making it easy to get quick to use and reduce development and design cost [4].

Web.py is a lightweight Python web framework. The framework is currently used by many large websites [5]. Scrapy is a fast, high-level screen capture and web crawling framework developed by

Python to crawl web sites and extract structured data from pages. It provides base classes for many types of crawlers, such as BaseSpider, sitemap crawlers, etc. [6].

WeChat Public Platform Development Model

WeChat public platform development has two modes. One is the edit mode, which does not require a server to be built, but the business logic that can be implemented is limited. The other is the developer model, which requires a server to be built, any business logic, and more advanced features provided by WeChat. This paper uses the second developer mode to build the WeChatPE system. The working principle diagram of the WeChat public platform developer mode is shown in Fig. 1.
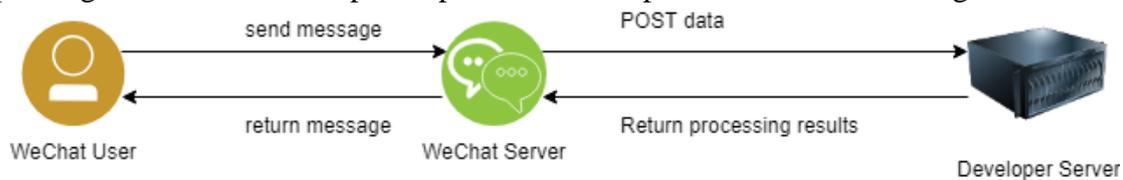

Figure 1. The working principle of the WeChat public platform developer mode.

In Figure 1, the WeChat user sends a message (message or event) to the WeChat server. The WeChat server will package the user's request into a string of XML format and pass it to the developer server using the POST request of the HTTP protocol. The developer server is responsible for receiving the request, extracting the information in the XML format string and packaging the processing result into a string response in XML format to the WeChat server, and the WeChat server returns the processed result to the WeChat user.

Analysis of Evaluation Tools

The WeChatPE is a system based on the WeChat public platform. There are two main types of users, namely the enterprise HR department and the university students. The servers involved in this system include data servers, application servers, and WeChat servers. The data server provides data support to the application server, and the data exchange between the application server and the WeChat server. The user sends the information to the WeChat server through the WeChat public platform, and the WeChat server returns the processed results to the user.

The WeChatPE system allows college students to use the system to register accounts, manage personal information, manage professional attainment information, manage job seeking information, and evaluate professionalism. For corporate HR departments, the system can be used to register accounts, manage company information, manage recruitment information, and obtain outstanding students who meet job requirements.

Student users can manage their professional attainment information. The professional attainment information includes students' mastery of professional skills information, award information, and student work information. Student users can also manage their job search information. The job search information includes job hunting, expected job type, expected job location, and expected salary. Student users can also manage their personal information. Personal information includes basic student information and account information. Management includes viewing and modification. After the completion of professional attainment information, student users can evaluate their professional attainment. The professional attainment evaluation includes evaluation of learning ability, work ability and overall ability.

Evaluation Tool Design

The goal of WeChatPE system design is to allow users to access it through WeChat at any time, and to obtain the binding of WeChat and system account by obtaining the openId of user WeChat. Because the openId of each user's WeChat is unique to the public number. The user's request content contains openId, so the user does not need to log in to use the WeChatPE system on the WeChat side. However, in order to make the system scalable, when the user first uses the system, the account

registration is required. The user name and password are provided to ensure that the user can log in normally on the non-WeChat platform.

The WeChatPE system uses the browser/server or B/S architecture as the basic architecture, and uses the WeChat server as the intermediate server for message processing and forwarding. WeChatPE system browser uses WeChat built-in browser. The WeChatPE system uses the B/S architecture to give users a consistent visual experience and reduces the hassle of user switching tools. The update of the WeChatPE system can be quickly updated to the latest version by using the B/S architecture, which not only saves the user from the upgrade process, but also avoids the problem of compatibility with the original system.

The website adopts a layered architecture as shown in Fig. 2, which can be divided into four levels: presentation layer, control layer, business processing layer, and data layer. The content of the presentation layer is mainly embodied by the HTML interface directly interacting with the user and the main interface of the WeChat public number. The user sends the request or data to the control layer through the presentation layer. The control layer distributes the request to the business processing layer corresponding to the requests by analyzing the request URL. The business processing layer implements processing of the business process and interacts with the data layer. The data layer is a specific database, which provides persistent support for the data.
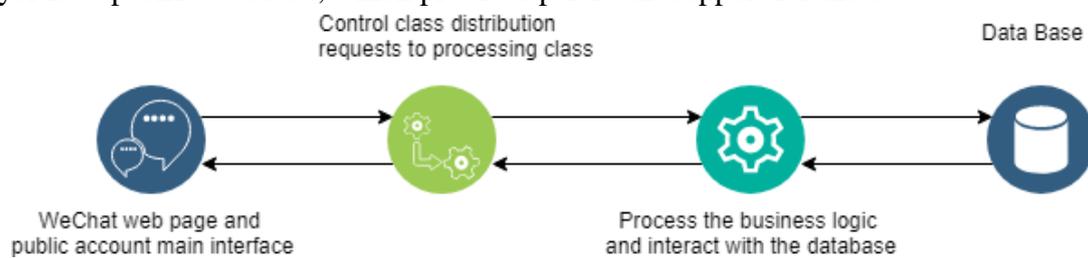

Figure 2. System layered architecture.

The main data sources for the WeChatPE system are data submitted by students and business users through the use of the WeChatPE system, student performance data provided by the system administrator from the recruitment website and the school. All data is stored in the MySQL database.

Users can add and modify their professional attainment information after registration. Professional attainment information includes mastery of skill information, student work information, and award information. The skill information includes the skill field, the skill name, and the skill proficiency. The student work information includes the student work type, the student work level, and the student work name. The award information includes the award field, the award category, and the award name.

The user can conduct an occupational attainment evaluation after completing the professional attainment information. There are three main evaluation results, including learning ability, work ability and overall ability. The basis for the evaluation of learning ability is derived from the student's course scores, award information and skill information. The academic scores are entered into the database through the data provided by the school, and the student's school and student number are used to achieve the corresponding scores. The basis for evaluating work ability is based on the student's student work information and award information. The basis for evaluating overall ability is derived from learning and work abilities.

Implementation of the Evaluation Tool

The students' learning ability, work ability and overall ability are all based on the percentage system evaluation criteria. The specific evaluation model is introduced below.

The data that have an impact on students' learning ability are the student's course grades and the level and number of professional awards. Then the total number of courses for student A is m, the course score for course i is x_i, the total number of professional class awards is n, the sum of awards j is y_j, the total number of professional skills is s, the sum of awards z is z_k, the proportion of courses is a, and the proportion of awards is b, the skill ratio is c, then the learning ability of student A is as shown in Eq. 1.

$$a * \frac{\sum_{i=1}^{m} x_i}{m} + b * \sum_{j=1}^{n} y_j + c * \sum_{k=1}^{S} z_k \tag{1}$$

Where a+b+c=1, the specific value will be adjusted according to the actual situation, and the total score of professional category awards shall not exceed 100 points.

The data that have an impact on work ability are the student's student work information and the grade and number of student work awards. The number of student jobs for student B is m, the student work is divided into x_i, the student work category is n, the award j is divided into y_j, the student work is a, and the prize is b. Student B's ability to work is shown in Eq. 2.

$$a * \sum_{i=1}^{m} x_i + b * \sum_{j=1}^{n} y_j \tag{2}$$

Where a + b = 1, the specific value will be adjusted according to the actual situation, student work points and awards plus points are not more than 100 points.

The evaluation method for students' overall ability is the weighted average of students' learning ability, work ability. The specific weights will be set and adjusted according to the actual situation.

The professional attainment evaluation has three evaluation results, including learning ability, work ability and overall ability. Before the user opens the professional attainment evaluation interface, it is necessary to check whether the user has already registered. If not registered, the user directly jumps to the insufficient privilege interface, prompting the user to register before using the function. If it is already registered, it is necessary to check whether the user has perfected the professional attainment related information. If it is not perfect, the user is prompted with the corresponding error prompt. If it is perfect, you can see your own three evaluation results on the interface. The flow chart of the professional attainment evaluation is shown in Fig. 3.
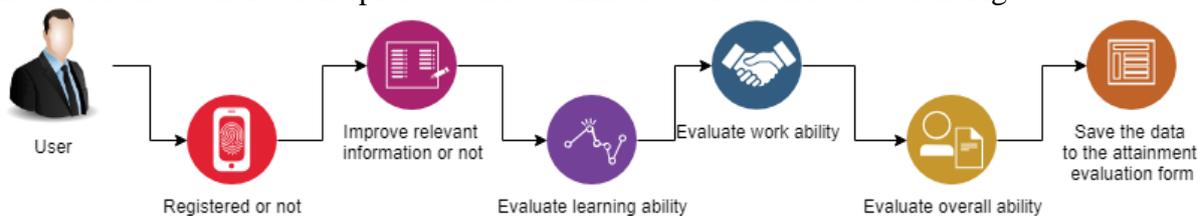

Figure 3. Flow chart of professional attainment evaluation.

Professional attainment information includes mastery of skill information, student work information, and award information. Users can add and delete the above information items separately. The register operation is the same as above. When adding a master skill information, save the content entered by the user on the web page into the database table, and then re-acquire the skill list of the interface. When deleting a master skill information, find the corresponding skill entry in the database table by the skill id, and re-acquire the skill list of the interface after deleting the entry in the database. The interface of the professional attainment information management module is shown in Fig. 4.
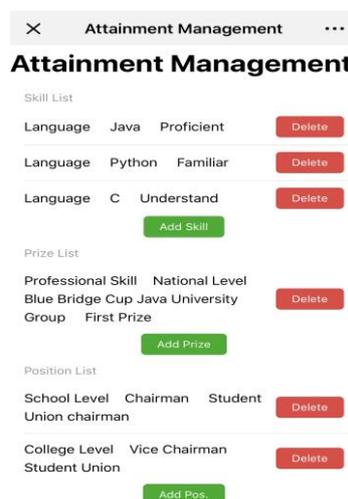

Figure 4. Interface effect diagram of professional attainment information management module.

The overall ability evaluation results are the weighted average of learning ability and work ability. The interface of professional attainment evaluation results is shown in Fig. 5.

Figure 5. Interface effect diagram of professional attainment evaluation module.

Evaluation Tool Development Environment

WeChatPE system back-end server uses Sina cloud server SAE, the back-end is written in Python language. WeChatPE system interface is unified in the form of WeChat webpage, using HTML, CSS, JavaScript, Ajax, JQuery and other technologies. In addition, WeChatPE system uses WeChat officially developed weUI framework, which makes the interface effect consistent with WeChat interface style, more suitable for browsing in the WeChat browser. The WeChatPE system database uses the exclusive MySQL database provided by Sina Cloud, and through the VPN tunnel tool provided by Sina Cloud, it can realize the Sina cloud MySQL database locally.

Summary

The WeChatPE system is based on the WeChat public platform, making it easier for users to operate. This paper focuses on the establishment of WeChatPE system and how to implement it. It uses python and web.py framework to build the background of the system, and uses the weUI framework to build the front-end interface of the system. From the three aspects of learning ability, work ability and overall ability, the students' professional attainment was evaluated, which laid a foundation for teaching resource recommendation and student employment recommendation. Part of the content of extracurricular activities, teaching resource recommendation and student employment recommendation has yet to be further improved in the future.

Acknowledgement

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