

Research on the innovation of Intelligent Student management Assessment Information System based on python software design

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Abstract. In the reform and development of modern education, the construction of intelligent student management and assessment information system based on modern information technology can not only build information management system for the management of colleges and universities, but also deal with the data information scientifically, and provide strong guarantee for the realization of digital and intelligent goals of college education. On the basis of understanding the current situation of intelligent student management and assessment information system innovation, this paper uses development technology to clarify the student management and assessment system, regards artificial neural network as the foundation, and constructs a standardized and perfect index management and assessment model. From the perspective of practical application, the intelligent student management and evaluation information system with software as the core meets the needs of modern education management.

Keywords: Artificial intelligence; Intelligent; Student management; Evaluation system; Python software.

1. Introduction

After the social construction has entered the era of intelligence, the requirements of digitization and intelligence of university education management are getting higher and higher. In the traditional college education management work, the staff master the application data accuracy and meticulousness is not high, mainly based on the way of manual statistics for processing. Due to the college student management work content is relatively complex, liquidity is stronger, the practical work on art inheritance is not scientific, so after the development of modern technology innovation, management of colleges and universities began using the theory of intelligent technology to optimize the innovation, in turn after the building intelligent student information system, systematic control on information related to the students. In order to ensure the data statistics and application work more accurate and flexible, current research scholars put forward the function of convenient operation, simple, simple process of intelligent student management information system, the student information is classified and hierarchical control will be combined with students are modified in the add or delete, the key to this is the current intelligent management student data. [1.2.3]From the perspective of practical application, intelligent student management and assessment information system can achieve the goal of dynamic management, focus on solving the security problems caused by information storage, and prevent information leakage or loss in the process of transmission and application. Compared with the traditional information and statistical data model, the intelligent student management system can prevent human errors, improve the efficiency of data collection, in order to protect the data in a more objective and intelligent management way. Nowadays, in the college education management work, intelligent student management system can effectively improve the work efficiency, improve the traditional work mode, so that the university office automation and intelligent information management era.[4.5.6]

Nowadays, when studying the intelligent student management and assessment information system, scholars from all over the world will integrate the traditional teaching work, educational administration work and management work with modern computer technology, and design the system function completely according to the work flow of the college. From the perspective of

practical application, intelligent student information management system can not only improve the efficiency of university education management, but also provide a lot of information for practice and innovation. From the perspective of long-term development, the intelligent student management and assessment information system should achieve the following goals: first, to ensure that the system has advanced, reliable, practical, simple interface function operation, the overall work flow is convenient and fast; Second, the sub-modules of the system should be managed by classification and classification, and pay attention to the dynamic management of the information resources of the database, so as to prevent the occurrence of bad phenomena such as data chaos during the operation of the system. Third, the system should provide query methods with different conditions according to the user's needs and pay attention to meet the user's sense of experience; Fourthly, the system should classify and summarize the query results of users. After realizing the export function, the relevant information should be printed out and divided. Fifthly, the system application should ensure the security of data information, and can quickly recover the mistakenly deleted information after effective backup. Sixth, the database should have the basic function of import and export; Seventh, the system should set the login name and password to prevent the system from being hacked, resulting in user information leakage.

Nowadays, domestic and foreign researchers have conducted multi-directional research on the theory and practice of student information management system. The system functions can provide multiple services for the needs of higher education management. In this paper, we study in the university students work investigated the index system on the basis of the part according to the student management staff and students interaction, fully considering the complexity and diversity of existing data information, reasonable use of information management system for unified management, will assess the student work index information divided into subjective and objective content, After fully considering the influencing factors related to student management, the intelligent student management and assessment information system is designed by using python software.[7.8]

2. Method

2.1 Requirement Analysis

This paper takes the education management of colleges and universities in a certain region as an example. After clarifying the content of the evaluation index for students in colleges and universities, it will be input into the evaluation system for maintenance and evaluation. Since the system has different permissions and accounts for each department, all departments have to input information and evaluate according to the evaluation content they are responsible for. This system operation process is only limited to management personnel. At the same time, the overall system provides a three-level assessment index management function. Each episode is set in advance by the management personnel. The final assessment content should be arranged in a form for perfect record, and the results of each historical assessment can be retrieved and viewed later. Due to the subjectivity of the current data structure and evaluation system, it is necessary to combine the experimental intelligent evaluation to obtain the reference value, and ensure that the intelligent evaluation interface and the main module will not be integrated.[9.10.11]

2.2 System Design

The overall system requirements are divided into two parts: on the one hand, it refers to the front function, which includes information maintenance, information query, information editing, etc.; On the other hand, it refers to the background function, which includes project management, system design, evaluation results, etc., and each module is distributed with small modules of other functions. In order to ensure the scalability and extensibility of the system during operation, flexible architecture should be chosen first when designing applications to ensure that the index content is

not associated with the database structure. The entity relationship of the database is shown in Figure 1 below:

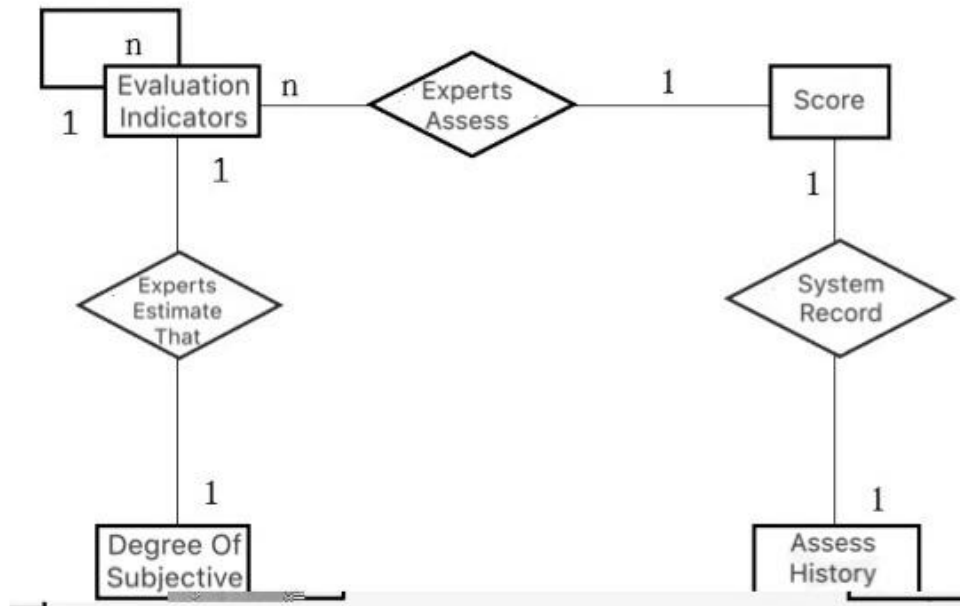


Figure 1 Entity-relationship structure diagram of the database

2.3 System Implementation

On the one hand, the control framework. According to the requirements of the system design, the whole system is divided into two parts. The management end is the background, which mainly controls the operation data and evaluation indicators; The foreground is the front end, which mainly provides data information for user interaction. Struts is an MVC framework from which the entire system is built to use service connectors to jump pages and process messages. In the construction of the intelligent student management evaluation system, the evaluation controller is regarded as the main control module, and the basic operations such as information deletion, result query and numerical modification are carried out by dispatching the system. Assume that when a user performs an action on a page, the system will trigger the evaluation controller and open source framework, and when receiving this action instruction, it will implement matching verification according to module properties. Since Struts and open source frameworks integrate applications in the system, the proxy for configuration files can control the transfer from Struts to Spring. In the case of an open source framework call, control of the system is handed over, and the context is used to find the actual business class called in the framework. Finally, according to the Spring dependency feature, the Action is provided with a user-written instance of Hibernate Dao user support, which contains the business logic processing method, data access code, and so on. Among them, Hibernate represents transaction and security control, can use the injected features to dynamically load data elements, complete the initialization work.[12.13.14]

On the other hand, evaluate the model. Because the index system contained in the system has different subjectivity and reliability, the obtained student evaluation results are not perfect, so the data mining technology should be used for integration analysis. In this research system, the artificial neural network (ANN) is proposed to obtain the latent law, so as to improve the accuracy of the evaluation model. Combined with the structure diagram of artificial neural network shown in Figure 2 below, it can be seen that it mainly simulates the structure of human brain and human intelligence to obtain a widely studied learner model.

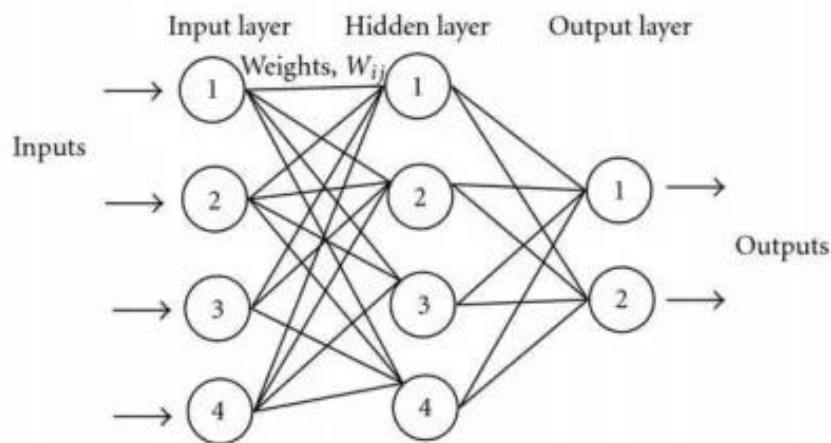


FIG. 2 Structure diagram of artificial neural network

3. Result analysis

On the one hand, the system management function. Since the index data contained in the original system have subjective degree and trust degree, eight experts are selected for comparative analysis in the experimental analysis, and each expert has rich experience in education management. The experts were asked to evaluate and analyze the subjective degree and trust degree of each group of index data, and the final result was the average value of expert evaluation by deleting the highest value and the lowest value. The specific results are shown in Table 1: Table 1 Information results of expert evaluation

The serial number	Experts	Maximum assessed value	Minimum assessed value	Valid evaluation value
1	A	35.36	26	148.72
2	B	23.92	20.8	165.36
3	C	15.6	10.4	184.08
4	D	29.12	9.36	171.6
5	E	22.88	10.4	176.8
6	F	18.72	16.64	174.72
7	G	29.12	22.88	158.08
8	H	9.36	9.36	191.36

On the other hand, the intelligent evaluation experiment. In the management of college students, because the evaluation data record is not perfect, so the experts will subjective score the results of student evaluation, which will be used as the training of the evaluation model. The obtained student management simulation data is regarded as the model training set, and the prediction value and the evaluation score of the index system are accurately calculated, so as to get the final score. The following table represents the deviation of the weighted scores of each index. This result fully reflects the index system of management evaluation, and there are differences in the value of weights and the degree of tendency.

Table 2 Comparison results of intelligent evaluation values

College	X1	X2	A weighted score	X1-deviation	X2-deviation
School of Economics and Management	86.5	88.5	91.6	5.1	3.0
School of International	89.6	96.8	85.4	4.1	11.3

Cooperation and Exchange					
School of Engineering and Information	73.1	90.6	88.5	15.4	2.0
Department of Humanities and Social Sciences	94.7	89.6	83.4	11.3	6.1
Tourism is	84.4	80.3	80.3	4.1	0
Department of Art Design	86.5	86.5	78.2	8.2	8.2
The average deviation				8.0	5.1

In the process of expert evaluation, the difference of index system should be evaluated from different angles by combining the percentage system, where the vertical represents the expert score and the horizontal axis represents the index. In order to ensure the rationality of the intelligent student management evaluation management system, it is necessary to combine the artificial intelligence algorithm to obtain the degree of propensity, and regard it as the supplementary content of the index system. Visually present the scoring results of all items, where the scoring values are represented by red lines, the upper and lower limits represent the highest and lowest scoring values, and the blue boxes represent the top 15% and bottom 85% scoring ranges. Compared with the research and design experiments in this paper, the intelligent student management and evaluation information system designed by python software meets the needs of education innovation and development in the new era, and can fully demonstrate the advantages of artificial intelligence, cloud computing, cloud architecture and other technologies, providing an effective basis for modern education reform. Therefore, Chinese scholars should continue to explore intelligent student management assessment information system, clear which contains hardware and software, give full play to the theory of advanced technology advantage, strengthen the assessment of students' management level and management quality, management review for the students set up the data mining model are shown in figure 3 below, make sure that the experimental data have integrity and precision. At the same time, it is necessary to strengthen the training of professional and technical personnel, optimize the professional skills and comprehensive quality of university education management personnel, quickly adapt to the new education management environment, determine the development direction of future research scholars, so as to build a high-quality and efficient education management mode.[15]

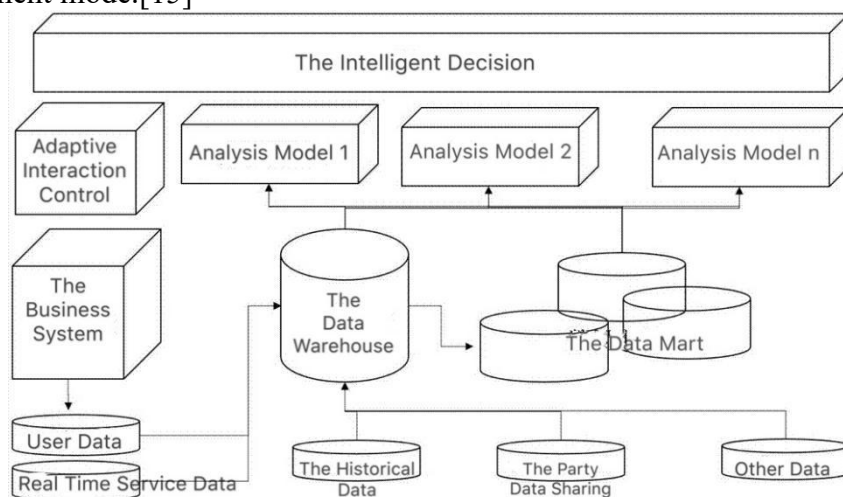


Figure 3 Structure diagram of data mining model

4. Conclusion

To sum up, the intelligent student information management system development design, the work is mainly based on the actual demand and future development needs, on the basis of accumulated experience, the use of modern science and technology and education management

using the prototype development method can improve data transmission in the network environment in the process of security and confidentiality, Further enhance the student information management transparency and information level. Student management information system can better balance the relationship between supply and demand of college students' information resources, make college students' information management and evaluation of rewards, punishments and funding work more scientific, fair and efficient, and finally realize the accurate and efficient management process of student information. The data information of each department can be effectively integrated to the maximum extent, which largely meets the needs of student work managers for student information intelligent management.

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