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Research Article

Design of the University Psychological Health Management System Based on Data Discovery

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University students' psychological state has not only an impact on their individual development but also on the campus's stability, which in turn has an impact on social cohesion and the general enhancement of human excellence. This article aims to conduct an in-depth study on the management system of psychological health in universities based on data discovery to determine whether university students have psychological problems in time, prevent extreme phenomena, and enhance the efficiency of psychological counseling in universities. This study initially discusses the general functional structure of the mental health management system at universities before breaking it down into three primary modules: user information function management; psychological testing and psychological caution; and psychological counseling management. Furthermore, it analyses and classifies data from the mental health management system using decision tree algorithms written in C4.5. It can effectively solve the problem of multiple attributes that tend to select values when selecting test attributes of the information gain by using the index of split as the information gain rate, which completes the design of the mental health management system by utilizing data discovery. The simulation experiments of the proposed work show that the suggested system has high security and accuracy of discovery, which can effectively improve the efficiency of psychological counseling work in universities.

1. Introduction

In recent years, extreme phenomena caused by mental health problems have happened in university student groups, due to which the reasons for psychological health problems in university students are complicated and must be addressed. However, with the fast expansion of information technology, computer application technology is gradually applied to the operation and management of various industries. Most universities have adopted a psychological fitness assessment system to assess the mental health of university students. Through the psychological health assessment scheme, psychological counselors in universities can quickly collect the mental health of University students to make reasonable judgments, improve work efficiency, reduce the intensity of work, to a large extent, provide help, and also accumulate a lot of psychological data in the database. However, the current mental health assessment in most universities is only for some operations such as access to the basic information of university students' psychology, information query, and information back-up. It does not carry out a comprehensive analysis of a large amount of psychological data. Without these psychological data, it is impossible to unearth buried information knowledge and properly understand the growing trend of university student psychology. As a result, it cannot give effective assistance for psychological counseling work.

With the increasing expansion of university students and the advancement of mental investigation, the volume of data that must be studied and handled grows exponentially. As a result, an accessible psychological assessment system based on a network platform is required to increase the work performance of psychological assessment data collection and give more in-depth

psychological data analysis. Furthermore, it may be capable of providing choice care for psychological health promotion and mental therapy at universities and colleges [1]. Data mining is a technique of finding hidden information in massive amounts of data using algorithms. Concerning university students' psychological difficulties, psychologists could use data mining technology to identify broad psychological issues in the group of students as well as particular situations with unique features [2]. Data mining mainly extracts hidden information knowledge from data. Data mining technology has made some achievements in the development and application of many industries, such as the financial and telecommunication industries. When data mining is utilized to develop a university student's mental health management system, matching algorithms are employed to analyze the fuzzy and random psychological data in university students' mental health files and identify prospective information. To a large extent, it can help the psychological counseling teachers quickly judge and prevent the psychological problems of university students. In addition, it can provide timely psychological guidance and intervention for students with problems, enhance the efficacy of work, and decrease the occurrence of psychological events.

Currently, university students experience varying degrees of negative psychological feelings, including despair and stress as a result of living situations, family history, academic achievement, and other issues [3]. University students have their traits in the community and belong to an uncommon group, and thus are vulnerable to despair and stress [4]. The information construction method of universities and colleges is comprehensive, with a vast volume of data gathered. If employed appropriately and a connection among the data is discovered, it will play a constructive part in the mental activity of universities and colleges [5]. Utilizing the big data approach to deal with these facts, we can reach diverse findings than standard psychological methods and present a fresh viewpoint. A substantial quantity of data has been gathered in the learning management databases of universities and colleges [6]. The student staff and management, on the other hand, simply genuinely record the students' psychological health generates a series, and the data processing activity is limited to simple statistics, accessibility, backups, querying, and other data elements [7]. University students are the backbone of the country's and society's future growth; if psychological elements influence their growth in all dimensions, major consequences will result [8]. Whenever they leave university and go into people, they are especially subject to the impact or seduction of many negative influences, which may be deadly to their growth [9]. This article describes the design and employment procedure of the data mining component and proposes a comprehensive set of handling algorithms for psychological assessment data in practical implementation depending on the design of the university students' mental prediction scheme.

The innovations of this article are as follows:

(1) This article describes the overall functional structure of the university mental health management system, where the system is simplified into three major parts: The functions of user information management, mental testing and psychological caution, and psychological counseling management are introduced in detail, and the database design is carried out. Based on C4.5 decision tree algorithm, this article analyzes and classifies the data of the mental health management system by completing the data mining of the mental health management system.

(2) This article compares with other mental health management systems where we obtained that the system mentioned in this article has higher security, higher correctness of data mining, and can effectively enhance the efficiency of mental therapy in universities.

(3) Also, it performs several experimental works and obtains that the total security of the proposed work has been kept above 0.9, indicating that the mechanism described in this work is secure. It can better protect university students' details.

The rest of the article is organized as follows: Section 2 represents the achievements of national and international researchers and scholars in our selected domain. Section 3 is based on a detailed examination of the material and proposed technique wherein it addresses aspects such as psychological data from university students, three modules of the proposed system, and database design for the proposed task. Section 4 highlights our experimental work and its results. Section 5 concludes the article.

2. Related Works

China's higher education system shifted from top to mass education, resulting in significant occurrences. It not only puts immense strain and sorrow upon that family but also has a detrimental influence on the usual teaching and administrative group. It is an essential and challenging point to appropriately filter out students with mental health issues and apply varying degrees of focus and care to various groups of students in university students' mental conflict prevention. Because of the extreme phenomena caused by mental health problems in university student groups, universities attach importance to the mental health of university students and design some management systems. Tong's traditional way of judging college students' mental health cannot effectively quantify the degree of college students' mental health. Depending on the judgment of psychologists and mental health consultants, this article conducts psychological health analysis from the perspective of students' physical and mental health. The Intelligent Mental Health Management System examined and investigated artificial intelligence and random jungle mental health. This method uses heart rate, exercise behavior, and mental health information of college students as raw data; processes the original data; uses artificial intelligence neural network to carry out feature extraction of mental information; and uses

the random forest as a classifier to judge the degree of students' mental health. The test results show that the accuracy is higher than other neural network algorithms, but this method does not dig out hidden data that affect students' mental health [10].

Because of the above, the author of [11] designs a psychological fitness management system based on the apriori algorithm to solve the security and efficiency problems of the current mental health management system. The management system is created with client and server modules in mind. The student user creates an account, provides consultation information from the client via the online self-selected or scale test, and sends the consulting information to the server. It separates the student user's psychological consulting database and applies the apriori algorithm to the separated psychological data to perform association rule mining. The outcome of the response is generated by employing parameter settings and an index knowledge base connection, assuming a high degree of correlation. If the degree of association is minimal, email, messaging, and other ways are utilized to contact consultation specialists; feedback results are obtained; encrypted; and the psychological data processing process is decoded to complete the strategy of the university students' psychological fitness management scheme. The experimental findings reveal that this system has high security and overall performance; however, it suffers from poor mining accuracy. Similarly, in the early work of [12], the author views the purpose as improving the efficiency of a multi-device runtime management system and developing a cloud computing management scheme for college students' psychological fitness. The network layer of the wireless network and the campus network are utilized to transport data to the cloud computing layer. The management system's intelligent processing layer mines retrieve and analyses a significant quantity of psychological data using a concurrent apriori algorithm. Furthermore, it delivers the results of data processing to the application layer's user interface by completing the design of the university students' mental health management system. The experimental results show that the management system can accurately assess the mental health of college students, but it does not enhance the efficiency of the psychological health management system in colleges and universities. The author of [13] used blockchain for healthcare detection. While the author of [14] proposed that blockchain technology reduces the dependence on central equipment and completes data information validation integrity and ownership. It has unique dispersion and transparency characteristics and can effectively solve some problems in the process of psychological data information management, such as incomplete records and inadequate access to mental health data. The mental health management system in colleges and universities must be interoperable. The system software applications and technical platforms need to communicate securely, and blockchain technology is adapted to safely store complete and tampered mental record data. This will solve the problem of data security interaction between the management systems, but the process is more complex.

Therefore, this article aims to make an in-depth study on the management scheme of psychological fitness in universities utilizing data mining. The simulation experiments of the proposed work show that the scheme mentioned in this work has high security and high correctness of data mining, which can effectively enhance the efficiency of psychological counseling work in universities and has a certain practical value.

3. Materials and Methodology

3.1. Features of Psychological Data of University Students. The number of students is quickly expanding as a result of the adoption of performance academic success. Aside from that, the quantity of related employment is not increasing, which raises the job effectiveness of university students to some level and concepts a predefined design for defining the qualities of distinct groups of datasets or idea sets. Every entry in the preset dataset is assigned a number of classifications, indicating that it corresponds to a recognized class. The layout is built by examining the attribute properties of every database entry. Every symptom in certain data of psychiatric problems comprises explicitly or implicitly information or is separated into numerous stages. If we consider the overt, hidden, or score of signs as the characteristic of every symptom, studying the connection link among characteristics is a multi-valued feature association rule issue. The model-building procedure is chosen at random from the model group, and the data subset utilized to develop the classifier model comprises the training sample set, with every data record serving as a training model [15]. The procedure of developing the model is a directed computer learning process since the classification process of every training model is predefined.

With the growth in university enrollment, employment units' expectations for university students' quality also rise, which calls for a certain degree of additional theoretical expansion and amplification. The resemblance of things in the identical class is quite great, whereas the disparity among objects in dissimilar categories is very high. Group examination involves the study of categorizing data based on the similarities and assessing the resulting numerous groups [16]. This allows the trained organization design to compute the experiment organization for the samples inside the test dataset and contrast it to the defined and understood number. If it is the same, the categorization is valid. If it is not identical, the categorization is incorrect. The model's classification performance is equivalent to the number of successfully categorized test samples divided by the overall testing data samples. If the precision fulfills the needs of the application, then the layout may be used to categorize data entries with unidentified class labels.

3.2. Challenging Tools of Psychological Data of University Students. Conventional psychoanalytic techniques do not employ information technology; thus the result is not evident, and the efficiency is low. Extracting data is also known as data testing or data reduction. It is founded on knowledge

of the search task as well as the data substance. Its goal is to locate the expressive data features, which are dependent on the search objective, decrease the size of data, and minimize the amount of data while retaining as much of the original information as possible. First, the dataset's root of the tree is determined by taking the characteristic with the greatest information gain out of all of the attribute values. The maximum available information gain is then matched to the information gain for every attribute value in the dataset. Second, the dataset is separated into many sub-datasets based on the various categories of information obtained. Then, the acquired sub-dataset is iteratively partitioned using the same procedure until all of the entries in the sub-dataset correspond to the same group [17]. Furthermore, when the freshman enters school, the school's mental health experts will conduct a psychiatric examination on them. In the earlier, almost all of them would have the freshman fill out a psychological evaluation scale and then evaluate scores. Because this assessment scale is so developed, with established themes and defined calculating techniques, it cannot take into consideration many additional elements.

To summarize, the mental health state of university students requires immediate attention. University students' beginnings, change in a residential area, study stress, dissatisfaction in interpersonal interactions, faults in the major selection, and other factors may cause psychological injury. The concept explanation is used to construct the feature descriptions of a category by determining the general features or summaries of data using the process of data categorization. The main properties of the corresponding target data items are then contrasted with that of multiple comparison category data objects, and variations are discovered, resulting in a distinguished characterization [18]. Statistical data of university students' mental data are no longer hard to gather and analyze using computer technology, thanks to the advancement and improvement of hi-tech. If we can use these skills to evaluate and summarize the data, we will be able to gain a better knowledge of university students' psychological states and then teach or advise them to enhance their psychological quality. This will be useful in coping with increasingly complicated social situations in the future.

3.3. University Mental Health Management System Based on Data Mining. The software used in this study implements the analysis of assessment findings by using the approach of psychological assessment data mining. It analyzes the collected usability test result data, creates a database, analyses the assessment findings utilizing the decision tree method, and generates an assessment. Mental assessment of data mining entails obtaining data from a database, cleansing the data, choosing a data mining technique, and displaying the findings. Figure 1 depicts the entire data mining process.

In this work, a first dataset is created by utilizing the responses to the university student questionnaire survey. A psychological health evaluation dataset to be gathered is produced through preprocessing of system incorporation, data retrieval, cleaning of data, and data transformation, and

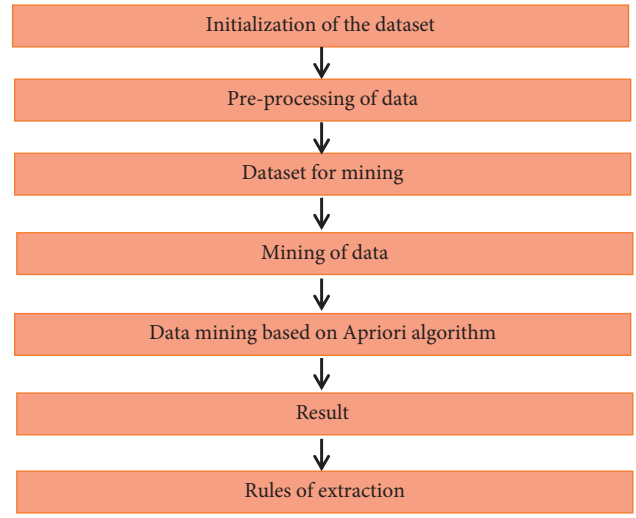

Figure 1: Typical data mining process.

the apriori algorithm can be used to mine the data. The apriori method requires a lot of data to operate, which is not ideal for effective mining. As a result, the system is built to separate the user mental counseling database into several comparable pieces before performing mining individually. Eventually, the data mining is finished uniformly, and the categorization of the data is produced through mining outcomes to gain a precise classification of university students' psychological health state.

Each user has associated accounts and roles in the network mode, which is based on the three-tier web architecture. As long as they can link with the Internet, they can use the browser to log on to the server and complete the work related to their roles and privileges. Figure 2 shows the functional structure of the mental health management scheme [19, 20]. According to this figure, the roles of university students' psychological management system are divided into three components: students, counselors, and system administrators.

This article makes a detailed analysis of the mental health management system in colleges and universities, carries out a specific analysis of each part of the core functional modules, and defines the specific functional modules of the mental health management system in the design of the overall results of the system.

3.3.1. User Information Function Management Module. Figure 3 depicts the flowchart for changing user personal information. According to this figure, the user information function management module contains several units such as registration and login, password alteration, and personal information change. System administrators can use Excel files to enter information such as student user names and passwords, carry out user registration in batches, or add users using sub-modules to increase users; university students can also register themselves [21, 22]. After logging into the mental health management system, students can change

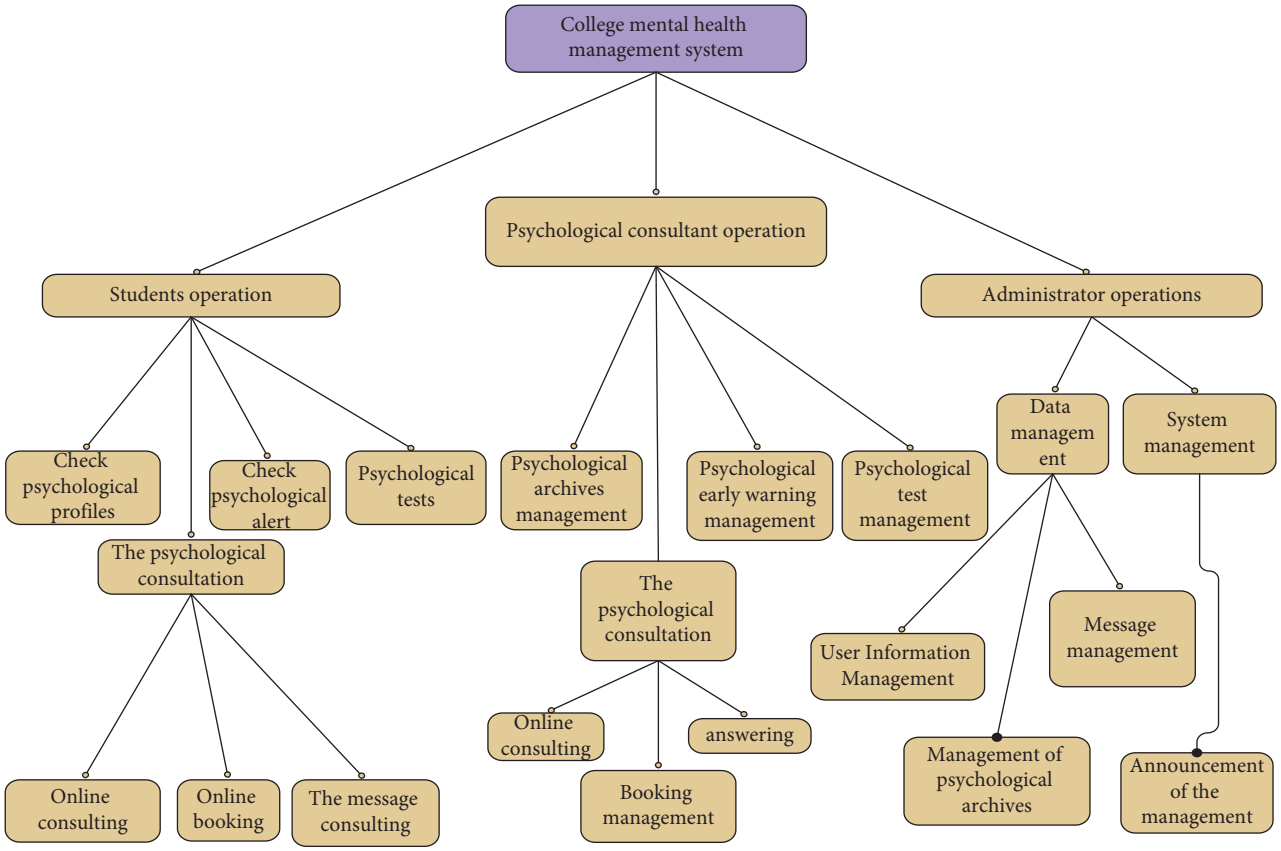

Figure 2: Functional structure diagram of the mental health management system.

their passwords and personal information. When a student forgets his or her login password and is unable to access the mental health management system, he or she can request that an administrator reset the login password.

3.3.2. Psychological Test and Psychological Warning Module. Figure 4 shows the flowchart of the psychological testing and psychological caution module. In this figure, the mental health management system uses the psychological testing and psychological caution module to investigate and understand the psychological status of university students and at the same time to issue psychological warnings to college students with potential problems. Psychological counselors develop scales for psychological tests, and after auditing, they add the scales to the mental health management system and publish them for testing. College students log on to the mental health management system to launch test answers. The database will automatically extract the corresponding test questions and provide them to students. Students submit tests. The management system analyses the data and obtains the outcomes of psychological tests. Psychological counselors review the outcomes of psychological tests and send psychological cautions to students with psychological problems [23, 24]. This module allows students to know their psychological fitness status in time and provides convenience. It aids the helping students to find their difficulties as soon as possible. Psychological consultants can better master the psychological development of university students and solve them in time to avoid extreme phenomena.

3.3.3. Psychological File Management. Figure 5 shows the time sequence diagram of the psychological file module. In this figure, the function of the mental file is to record the elementary information of university students and related information about their important mental states, facilitate the management of the progress of students' psychological health, and guide students' mental health [25, 26]. The management module of psychological files contains many functions, such as creating new psychological files and viewing modifications and deletions. Only system administrators have the right to delete and create psychological files. Psychological counselors can accurately construct psychological files by knowing the students' psychological status according to the test results of students' psychology and the related conditions of psychological counselors.

3.3.4. Management Module of Psychological Counseling. The psychological counseling module includes online counseling, online booking, and message counseling. The flowchart of message counseling is shown in Figure 6. Students can consult directly online, and they can also use online bookings or messages to request guidance and help from a psychologist. Online counseling is an important module in the psychological counseling module. Students choose their counselors voluntarily and communicate and

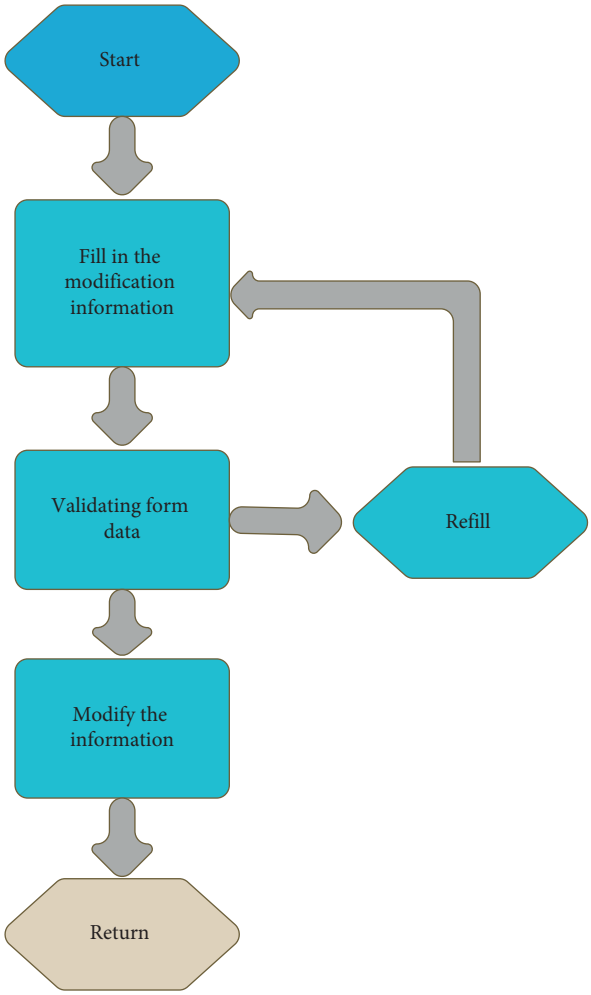

Figure 3: Flowchart of user personal information modification.

consult with them [27, 28]. Online booking and message counseling require that the student's desired counselor be able to communicate with the counselor at the appointed time when they are not online, enhance the excellence of service for users, and enhance the efficiency of the mental health management system.

3.4. Database Design. The logical structure of the database contains a user information table, a psychological file information table, and a psychological test information table [29].

Table 1 shows user information in our proposed system. According to this table, the user has 9 attributes such as the ID of the user (primary key), his/her password, name, sex, ID card (if any), telephone number, email, role, and remark (if any).

Table 2 shows psychological archives information in our proposed system. According to this table, psychological archives information consists of 8 attributes such as the ID of the user (primary key), student ID, name, sex, class, telephone number, information (if any), and remark (if any).

Table 3 shows psychological test information in our proposed system. According to this table, psychological test information also consists of 8 attributes such as the ID of the user (primary key), student ID, time, sex, class, ID of paper, result, and remark (if any).

4. Experimental Work and Results of Mental Health Management Algorithm Based on Decision Tree

4.1. Experimental Work. The decision tree contains two steps when dealing with the classification of mental health data: using the set of learning and training to scientifically generate the classification model of the decision tree and using the classification model to classify the mental data samples. In the process of mental health data sample classification, the root node is the main initial stage, and the node of a leaf is the endpoint. The characteristics of the mental health data sample are verified in the down way of the branch of a leaf [30, 31]. This article uses C4.5 decision tree algorithms, the split index refers to the rate of information gain, which effectively resolves the problem of multiple attributes when choosing attributes for the gain selection test of mental health data application information. Information gain rate definition is expressed by the following equation:

$$\text{Gain Ratio}(S, A) = \frac{\text{Gain}(S, A)}{\text{Split Information}(S, A)}, \quad (1)$$

where Dain (S, A) represents the information gain of mental health data with attribute A, and Split Information (S, A) represents the consistency of S, a sample set of split mental health data with attribute A.

Using a decision tree algorithm to classify psychological fitness data to provide effective data support for the university mental health management system,

$$\text{Split Information}(S, A) = -\sum_{i=1}^{n} \frac{|S_i|}{S} \log_2\left(\frac{|S_i|}{S}\right). \quad (2)$$

In the procedure of generation of decision tree, the main purpose is to clarify the target of split. We compare the scope of characteristic information acquisition rate in each mental sample data to understand C4.5 in the decision tree method for the appropriate split target. Furthermore, as a branch node in the decision tree, the character with the highest information acquisition rate and a value greater than the average of all attributes are chosen. Continuous descriptive attribute segmentation gives a collection of discrete intervals. Figure 7 explains the flowchart of the proposed C4.5 decision tree procedure.

(1) The continuous attribute values are reasonably arranged according to the S samples of the mental health data training set from minor to major, and the maximum and minimum values in the interval are allocated to max and min. It is concluded that the order of characteristic values is $\{A_1, A_2, A_3, \ldots, An\}$.

(2) Assuming that A_i is the separating point of equal division, if there are N separating points of equal division in the interval [MAX, MIN], according to the

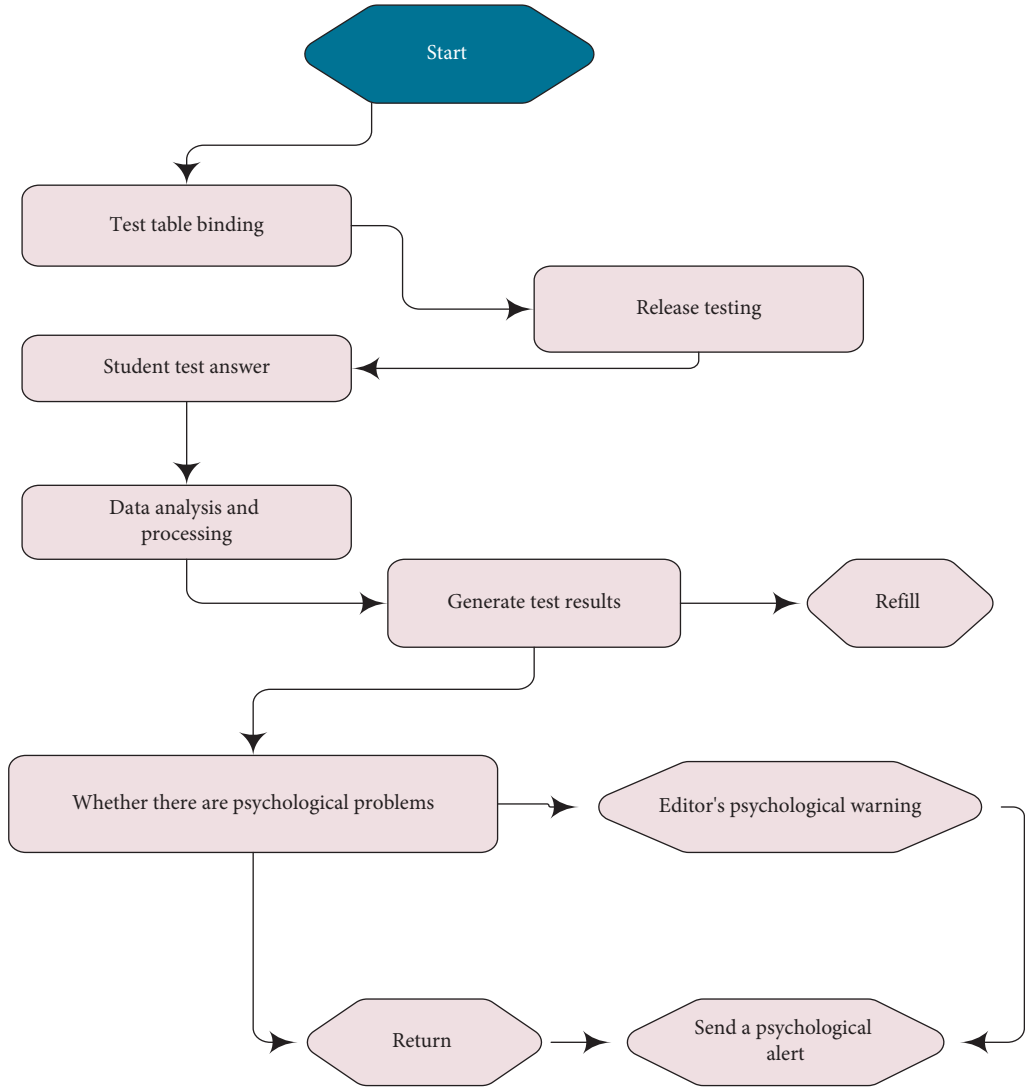

Figure 4: Flowchart of psychological test and psychological warning module.

calculation, the ith dividing point formula of mental health data is obtained, which is expressed as follows:

$$A_i = \text{MIN} + i^* \frac{(\text{MAX} - \text{MIN})}{N}, \tag{3}$$

where $i = 1, 2, 4, \ldots, n$.

(3) The interval value [MIN, A_i] and the information gain value in [A_i, MAX] are calculated. $N - 1$ division points in overall are compared.

(4) Assuming that the threshold of continuous attribute A segmentation is the maximum information gain rate A_k mental health data segmentation point, this segmentation point is taken as the basic divided dataset and the characteristic value is set in [MIN, A_k] and [A_k, MAX].

All likely values in the psychological data sample set are utilized to split the psychological data samples, and many sample sets are obtained. The subsample sets are separated in the same manner till they cannot be separated anymore to construct a decision tree. When creating the decision tree algorithm, C4 5 is used. The goal category you choose will affect the clarity of each category. The confidence entropy must be used to evaluate the decision tree, which is calculated as follows:

$$S = -\sum_i \left(P_i^* \log P_i\right). \tag{4}$$

The information gain of mental health data is the reduction of info entropy. As per information entropy, the level of classified variables can be defined. If the mental health data training set S has two categories, namely category A and category B, and contains x and y corresponding records belonging to A and B, respectively, it is clear that the total amount of information of the category of a record in the mental health data training set S is:

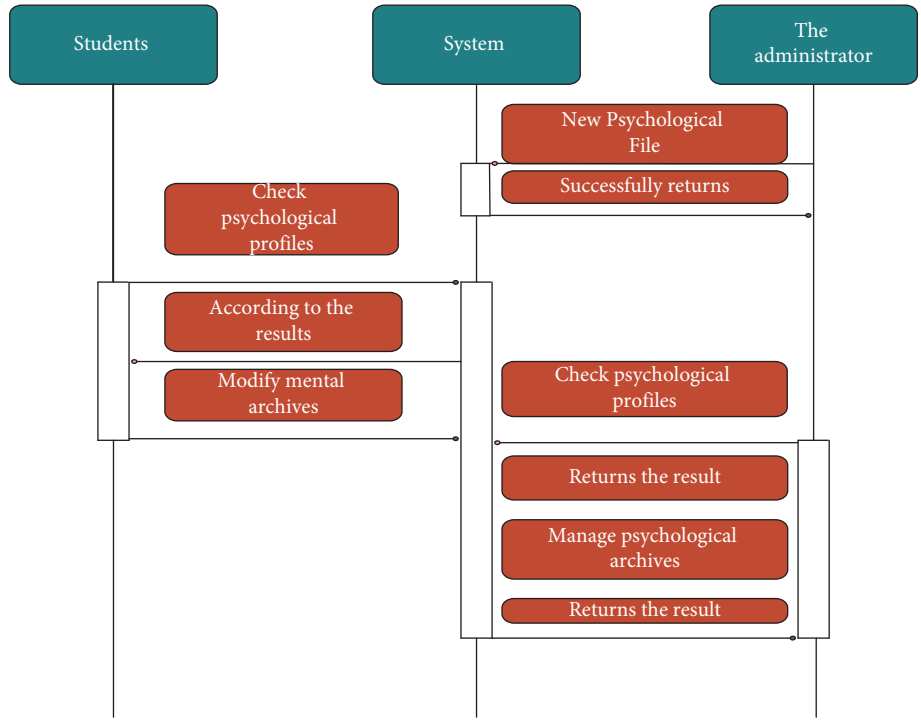

Figure 5: Sequence diagram of psychological archives module.

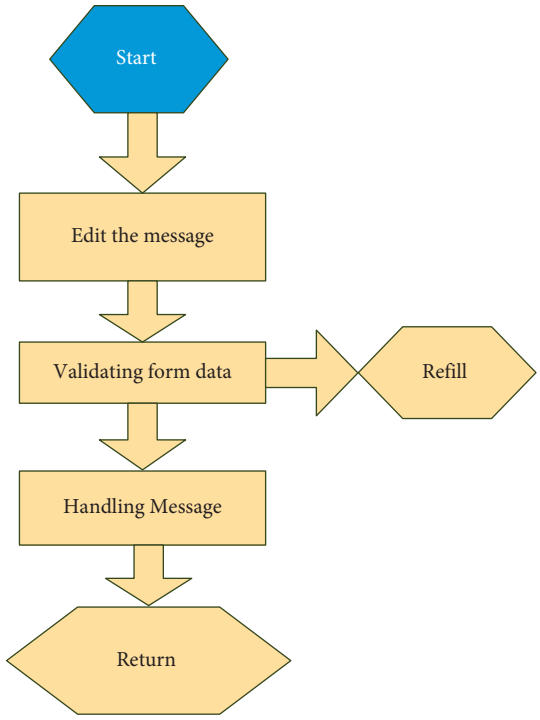

Figure 6: Message consultation flowchart.

$$\text{Info}(S) = \text{Info}(S_a, S_b) = -\left(\frac{x}{x+y} \bullet \log\frac{x}{x+y} + \frac{y}{x+y} \bullet \log\frac{y}{x+y}\right). \tag{5}$$

Assuming that variable C is the root node of the decision tree, it is concluded that the subcategories in the divided mental health data training set S are $\{S_1, S_2, \ldots, S_k\}$, then $S_i\,(i = 1, 2, \ldots, k)$ contains x_i and y_i which are the records of category A and category B. It is concluded that the amount of classified information in the mental health management system in all subcategories is expressed as in the following equation:

Table 1: User information.

The column name	Data type	Size	Instructions
ID	Int		Primary key user number
Password	Varchar	20	User's password
Name	Varchar	20	User name
Sex	Char	2	User's gender
ID card	Varchar	20	User's ID number
Tel	Varchar	20	Customer phone number
Email	Varchar	40	User's email address
Role	Varchar	20	User category
Remark	Text		Note: can be empty

Table 2: Psychological archives information.

The column name	Data type	Size	Instructions
Id	Int		File number is the primary key
Stu id	Int		Student no
Name	Varchar	20	Student's name
Sex	Char	2	Students' gender
Class	Varchar	20	Class
Phone	Int		Phone number
Information	Text		Mental state information
Remark	Text		Note: can be empty

Table 3: Psychological test information.

The column name	Data type	Size	Instructions
Id	Int		Primary key is the test number
Stu id	Int		Student no
Time	Date time 2	7	Test's time
Sex	Char	2	Students' gender
Class	Varchar	20	Class
Paper id	Int		Questionnaire number
Result	Text		Test results
Remark	Text		Note: can be empty

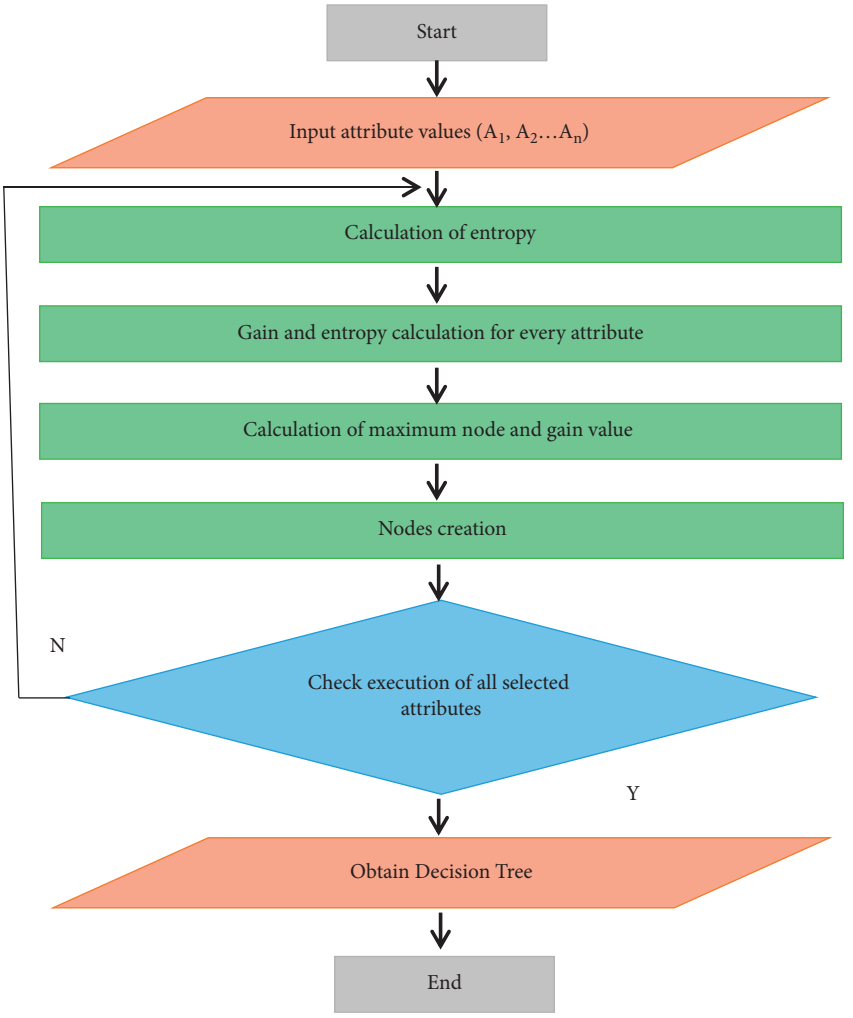

Figure 7: Flowchart of the proposed C4.5 decision tree procedure.

Table 4: Experimental parameters.

Environment	Parameter
Operating system	Windows 10
Database	SQL Server
CPU	4 nuclear
Memory	4G

$$\text{Info}(C,S) = \sum_{i=1}^{k} \frac{x_i + y_i}{x + y} \text{Info}(S_{iA}, S_{iB}). \quad (6)$$

Assuming that variable C is the psychological data classification node in the decision tree, the incremental value of node information is the maximum of the incremental values in the variable information. Then the increment of

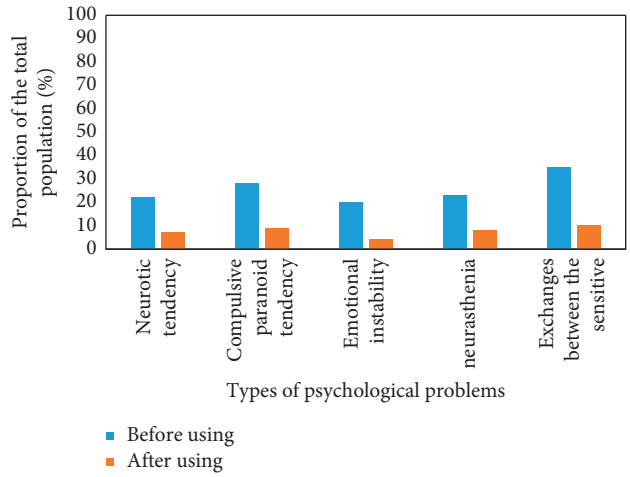

Figure 8: Comparison results before and after using the system in this article.

Table 5: Comparison of running time of different systems.

Number of experiments/times	This article system	Literature [1] system	Literature [2] system
100	5.3	12.5	18.9
200	4.8	12.3	20.1
300	5.1	13.8	21.2
400	5.6	15.7	20.6
500	5.7	15.6	23.4
Average	5.3	13.98	20.84

variable C information is expressed as in the following equation:

$$\text{Gain}(C) = \text{Info}(S) - \text{Info}(A, S). \tag{7}$$

Then the definition of function of information gain in the mental health management system is expressed as in the following equation:

$$\text{Gain}(D, S) = \text{Info}(S) - \text{Info}(D, S). \tag{8}$$

Through the above process, the construction of a university mental health management system based on data mining is completed.

4.2. Experimental Result. Simulation experiments were carried out to validate the efficiency of the university mental health management scheme using data mining. Table 4 shows the experimental parameters. This article takes a university with 25314 students as an example.

The experimental comparison is carried out for several types of psychological problems. Figure 6 shows the comparison of the proportion of students with psychological problems before using the university mental health management system using data mining mentioned in this work and after using the department mentioned in this article for 1 year. Figure 8 depicts the comparative findings before and after utilizing the system in this study.

Through the analysis of the above figure, it can be seen that the proportion of students with this ability problem after 1 year of using the university mental health management system based on data mining proposed in this article is significantly lower than that before using the management system. Therefore, especially the proportion of students with communication-sensitive problems is greatly reduced. When the approach presented in this research is not employed, 35 students have communication-sensitive difficulties. After using the mental health management system proposed in this article, the proportion of this type of student is reduced to 10%, which shows that the system proposed in this article can effectively solve the psychological problems of university students. Table 5 shows the comparison of the system operation time between the university mental health management system proposed in this article and the systems proposed in the literature [1, 2].

As can be seen from the above table, the longest time consumption of 100 experiments in this article is 5.7 s, while the shortest time consumption is 4.8 s, with an average value of 5.3 s. The longest time consumption of the system proposed in document [1] is 15.7 s, while the shortest time consumption and the average time consumption of 100 experiments are 12.3 s and 13.98 s, respectively. The longest time consumption of the system proposed in document [2] is 23.4 s, while the shortest time consumption and the average time consumption of 100 experiments are 18.9 s and 20.84 s, respectively. It can be seen that the other literature systems take a long time, which reflects the obvious advantages of the system proposed in this article. The application of the decision

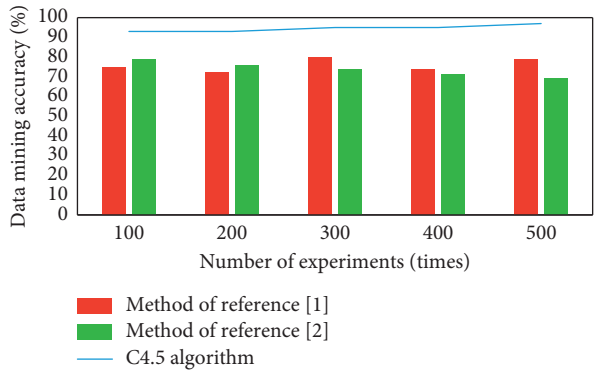

Figure 9: Comparison of data mining accuracy of different methods.

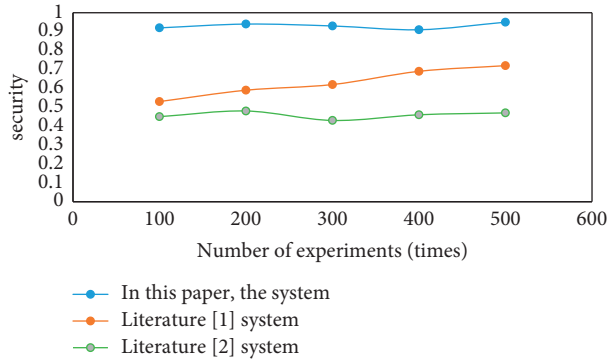

Figure 10: Security comparison of different systems.

tree algorithm in the university mental health management system has a high effect and improves the efficiency of the system. Figure 9 shows the C4 5 comparison of data mining accuracy between the data mining algorithm and the methods proposed in the literature [1] and literature [2].

From the analysis of the above figure, it is clear that the mining curve of the method proposed in document [1] fluctuates obviously from the beginning to the end of the experiment. The data mining accuracy of the method proposed in [2] is 79% at the beginning of the experiment, while the mining accuracy gradually reduced with the increase in the number of experiments. The data mining accuracy of the decision tree has been stable at more than 90%, which shows that the effect of mental health data mining using the technique suggested in this article is good and ensures the quality of system data. At the same time, it also shows that the overall stability of the mental health management system based on data mining constructed in this article is good, which can effectively improve the efficiency of psychological counseling.

System security is the necessary performance of the university mental health management system. Therefore, the security comparison between the mental health management system based on data mining constructed in this article and the systems proposed in the literature [1] and literature [2] is shown in Figure 10.

It can be seen from the above figure that the overall security of the system proposed in the work of [2] is poor, and the highest is no more than 0.5. Although the security of the system presented in the work of [1] is stronger than that of the system proposed in article [2], it is still lower than the security of the management system provided in this work. The total security of the proposed work has been kept above 0.9, indicating that the mechanism described in this work is secure. It can better protect university students' details.

5. Conclusions

The university mental health management system based on data mining is mainly a set of a system built for the mental health management of university students. The main purpose is to effectively manage the psychological fitness of university students through the advantages of computers and information technology. In addition, it is also necessary to find out the problems of university students' mental health in time, master the development of students' psychology as much as possible, and provide effective guidance to students with psychological problems in time. Therefore, improving the overall psychological quality of university students can not only help the healthy growth of students but also solve the problems of mental health education and management in universities, which is more in line with the needs of the current society and has certain practical value.

Data Availability

The experimental data that are used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors have no conflicts of interest regarding the publication of this work.

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