Psychological Data Management System Based on Data Mining

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Abstract - *Internet as the fertile ground of free speech, everyone can express their emotions, cognition and views of things via the internet. Nowadays, with the growth of the database application, every area has accumulated enormous quantities of data including records of the activities of the people. The Internet provides a broad platform for contemporary people to express their thoughts and emotions, while also providing a channel for educational workers to understand the thinking and mental states of the people. This paper explores the usefulness of data mining technology for the psychological management of people first, and then uses Visual Studio 2008, ASP.NET and C # to create mental data management system. The experimental result show that the system can effectively excavate the psychological data of college students, and provide a new way of thinking for university students' mental health education.*

Key Words: **Psychological Health Management, Apriori, Data Mining, Embedded Data**

1. INTRODUCTION

With continuous development of society and continuous improvement of science and technology, people's psychological situation is also undergoing increasingly drastic changes. People come from different regions, and grow up in different environments with different cultures. But when they lives in a society, facing the same living and working environment, it is very easy to make their psychological environment change dramatically, and it is prone to get negative psychological emotion, even anxiety and depression. If such negative emotions long for a time, it will affect their life quality. Therefore, a study of the movement of people's negative emotions and psychological problems of the mining model of the brain has become an important research topic of current.

In this paper, the embedded data of Psychological management system mining technology is taken as the target. It elaborates the design and implementation technology of module management system for psychological data mining, and introduces the method of key technology used in the development process and application of linear fitting. It also discusses the application of mining algorithm analysis of the factors affecting the Psychological health of students. The data mining technology are embedded to existing Psychological management system, which does not affect the other functions of the system and it can conveniently and quickly find the relationship between various factors from a large amount of data, providing more valuable results.

Through the application of data mining technology in the system, on one hand, we can choose the appropriate data mining technology in the development of the embedded process, and show the way to solve the problem that other technologies cannot compare with; On the other hand, It will be able to get an overall grasp of the people psychological management system through design, development and implementation of the whole process, to construct psychological archives service system and mode of science.

2. RELATED WORKS

With continuous development of society and continuous improvement of science and technology, people's psychological situation is also undergoing increasingly drastic changes, especially for the psychological status of contemporary college students. College students are a special group, which come from different regions, and grow up in different environments with different cultures. But when they entered the University, facing the same living and working environment, it is very easy to make their psychological environment change dramatically, and it is prone to get negative psychological emotion, even anxiety and depression. If such negative emotions long for a time, it will affect the students' learning and life quality. College students are the successor force of national construction. College students' healthy growth directly affects the sustainable development of the country and the society. Therefore, a study of the movement of college student's negative emotions and psychological problems of the mining model of the brain has become an important research topic of current. The embedded data of psychological management system mining technology is taken as the target. It elaborates the design and implementation technology of module management system for psychological data mining, and introduces the method of key technology used in the development process and application of linear fitting. It also discusses the application of mining algorithm analysis of the factors affecting the psychological health of students. The data mining technology are embedded to existing psychological management system, which does not affect the other

functions of the system and it can conveniently and quickly find the relationship between various factors from a large amount of data, providing more valuable results.

3. PROPOSED SYSTEM

The data mining technology is embedded into the psychological management system, which mainly uses the existing data resources in the system to carry on the sampling. The sampling data is cleared and the data set is removed from the "noise" and irrelevant information. The system includes service module and teachers and administrators module. The latter includes measuring module management module, data mining module, psychological counseling module, file management module, and the daily work. To coordinate the work of each module, the system can reflect the present mental health and psychological quality and provide direct practical basis for mental health education and the normal teaching work.

Through collection and access of a large number of relevant documents, the data mining technology is studied intensively to put forward the basic framework and function modules of the data mining system for psychological problems. Based on the design and development of the data mining system, psychological problems existing in the society are evaluated using a health evaluation system. The reasonable tool and data mining algorithm are taken as the key factors. Meanwhile, data mining, man-machine interface and response mode of reasonable design are also very important.

4. METHODOLOGY

With nonstop advancement of society and consistent improvement of science and innovation, individuals' mental circumstance is likewise experiencing progressively exceptional changes. Individuals originate from various areas and experience childhood in various situations and with various societies. Be that as it may, when individuals start to confront a similar living and workplace, it is extremely simple to make their mental condition change drastically, and it is inclined to get negative mental feeling, even nervousness and sadness. On the off chance that such negative feelings long for a period, it will influence the existence quality. Individuals are the replacement power of national development. The sound development legitimately influences the feasible advancement of the nation and the general public. Thusly, an investigation of the development of individuals' negative feelings and mental issues of the mining model of the mind has become a significant ebb and flow research subject.

The inserted information of mental administration framework mining innovation is taken as the objective. It expounds the plan and execution innovation of module the board framework for mental information mining, and presents the technique for key innovation utilized in the improvement procedure and use of direct fitting. It additionally talks about the utilization of mining calculation investigation of the variables influencing the mental wellbeing. The information mining innovation are implanted to existing mental administration framework, which doesn't influence different elements of the framework and it can advantageously and rapidly discover the connection between different elements from a lot of information, giving progressively significant outcomes.

4.1 Data Set

Data set might also be a series of understanding. Most primarily an understanding set corresponds to the contents of one database, the place each and every column of the desk represents a precise variable, and each and every row corresponds to a member of the dataset.

4.2 Data Pre-Processing

We follow SCL-90 symptom checklist for use, to calculate each score of student somatization, interpersonal sensitivity, depression, anxiety, hostility, phobia, paranoia and psychosis of 9 psychological factors. The personal psychological problem data sheet is defined as shown in table 1. According to the principle of continuous data discretization and discrete data classification", we can make the psychological symptom factor and individual basic information factor into several items: Combined with the encoding attribute and psychological analysis, 3000 original data after preprocessing are output as excel in the form of a partial screenshot. Each row is a transaction, and in addition to the extra order every other attribute value is a term for this transaction. Based on the improved Apriori algorithm, the association rules mining is carried out.

4.3 Apriori

Apriori calculation is utilized for finding successive thing sets during a dataset. Name of the calculation is Apriori in light of the fact that it utilizes earlier information on visit thing set properties. An iterative methodology or level-wise pursuit is applied where k-visit thing sets are utilized to discover k+1 thing sets. It continues by distinguishing the continuous individual things inside the database and expanding them to bigger and greater thing sets as long as those thing sets show up adequately frequently in the database. The incessant thing sets dictated by Apriori are regularly wont to decide affiliation rules which feature general patterns inside the database.

```
Apriori(T, ε)
    L1 ← {large 1 − itemsets}
    k ← 2
    while Lk−1 ≠ ∅
        Ck ← {c = a ∪ {b} | a ∈ Lk−1 ∧ b ∉ a, {s ⊆ c | |s| = k − 1} ⊆ Lk−1}
        for transactions t ∈ T
            Dt ← {c ∈ Ck | c ⊆ t}
            for candidates c ∈ Dt
                count[c] ← count[c] + 1
        Lk ← {c ∈ Ck | count[c] ≥ ε}
        k ← k + 1
    return ⋃k Lk
```

The information mining innovation is installed into the mental administration framework, which for the most part utilizes the current information assets in the framework to carry on the testing. The examining information is cleared and the informational index is expelled from the "clamor" and immaterial data. The framework incorporates administration module and instructors and heads module. The last incorporates estimating module the board module, information mining module, mental advising module, record the board module, and the day by day work. To facilitate mining system

Through assortment and access of an enormous number of applicable archives, the information mining innovation is concentrated seriously to advance the fundamental structure and capacity modules of the information digging framework for mental issues. In view of the structure and advancement of the information mining framework, mental issues existing in the general public are assessed utilizing a wellbeing assessment framework. The sensible instrument and information mining calculation are taken as the key variables. Meanwhile, data mining, man-machine interface and reaction method of sensible structure are likewise significant.

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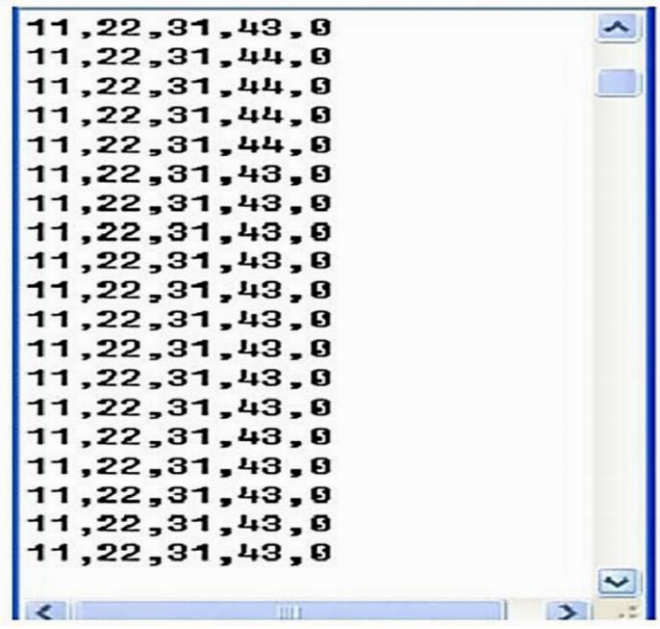

Figure 1 Psychological data file

5. IMPLEMENTATION

The system implementation consists of a dataset and different data mining techniques and data preprocessing techniques. Apriori algorithm is used to generate the results. By using this we clean and classify the employee data set into different departments like human resource, sales and research and development.

5.1 Apriori Algorithm

crafted by every module, the framework can mirror the present emotional well -being and mental quality and give direct down to earth premise to psychological wellness training and the ordinary educating work.

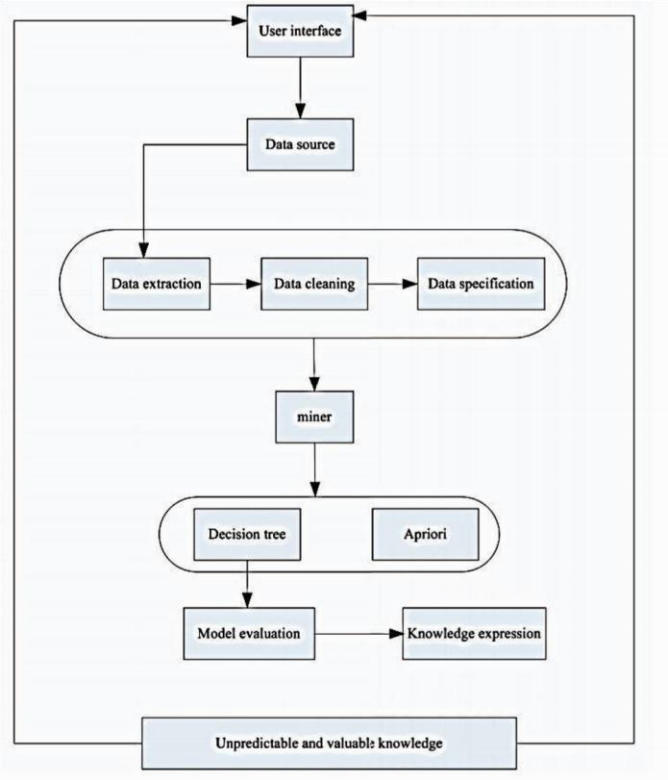

Figure 2 Business flow of psychological problem data

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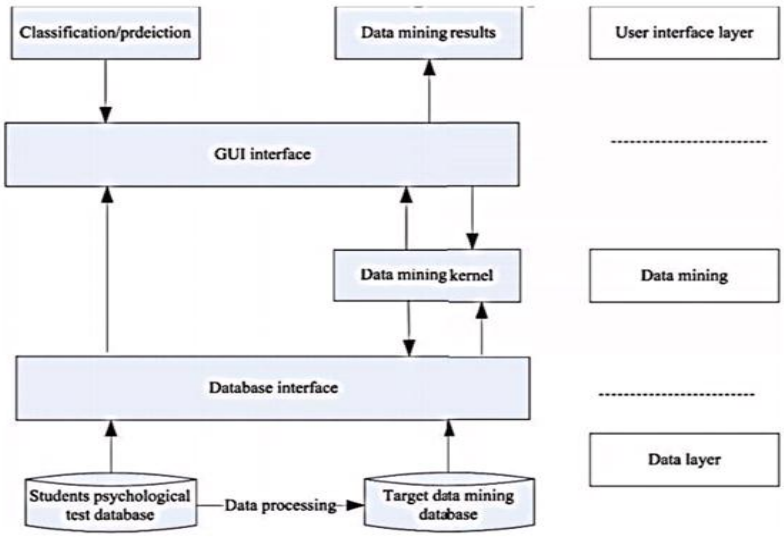

Figure 3 Mental health test system structure

6. CONCLUSION

The application of data mining technology to the psychological management system is implemented. Using SCL90 psychological measurement the users, psychological survey results and UPI personality test table of project results, as well as basic information input as training set. 250 users are taken as the training data, and the corresponding attribute decision tree is established. The data mining results are consistent with the experimental results, which is similar to the use of psychological methods to the research conclusion. The results can be seen that the data mining technology embedded into the public psychological management system research is not only feasible, but also required for counsellors. It also improves the mental health level of the users.

7. REFERENCES

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