

# *Research on the Application of Cluster Analysis in the Information Management of College Students' Apartment*

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**Abstract:** With the advent of the information age, a large amount of information data is stored and produced in the management process of some college students' apartments in China. Under the new situation, using the cluster analysis method of big data technology to deal with these massive data effectively can further optimize the effect of apartment management and improve the service quality; realize the informatization of apartment student behavior record; realize the modernization of the routine management of apartment and realize the humanization of apartment security service to make students, school and society satisfied.

## 1. Introduction

College students' apartment is the center area of student life. Its data amount is large and all kinds of information management contents are complicated, which not only waste a lot of manpower and material resources, but also make mistakes easily. Using computer aided management and introducing a software to manage the student apartment intelligently is the most effective means, which can save manpower and material resources, realize the unified management of student apartment and control the whole situation. With the rapid development of computer science, people in various industries only need simple training to freely send and receive, collect, analyze, process and apply the information on the computer.

## 2. Introduction

Cluster analysis is a statistical analysis technique that divides the research objects into groups of relative homogeneity. Cluster analysis, also known as group analysis, is a multivariate statistical analysis method for classifying samples or indicators according to the principle of "homogeneity", which discusses a large number of samples and requires reasonable classification according to their respective characteristics. There is no model for reference or follow, and this kind of analysis is an exploratory analysis. In the process of classification, people do not need to give a classification criteria, clustering analysis can start from the sample data to classify automatically.

### **3. Analysis of Big Data's Source in the Management of College Students' Apartment**

Apartment basic information (building information, facility information). (1) basic information about the apartment: each building has its own building number, building manager and personnel numbers. Statistics on the use of dormitories, such as the use of rooms, the statistics of empty beds, etc. (2) basic information of the dormitory: (building number, dormitory number, telephone number, number of people to live in , number of people have lived in) each dormitory has a unique building number and dormitory number, The number of people who can live in and the number of people who already live in. (3) basic information of facility equipment: Register which building, which bedroom, how many and how many types of facilities and equipment need to be repaired, record of maintenance time, maintenance status, and maintenance completion status.

Apartment service manager information (basic information and performance information). (1) basic information such as work number, name, sex, position, home address, contact method, working place of front-line service personnel and management personnel, (2)the trace information of the staff of the apartment management center needs timely increase, delete, change, easily to have a unified collection, management, apartment better operation.

### **4. The Application of Cluster Analysis in the Management of College Students' Apartment**

The goal of cultivating people with virtue and the idea of “three full Education” requires that all students participate and record in the whole process, and that the records of students' behaviors should be informationalized; the concepts of green, environmental protection and energy saving emphasize the social benefits, and requires university to realize the modernization of apartment management. the diversification of apartment students' needs in the new situation requires the humanization of apartment security service.

#### **4.1 The Application of Clustering Analysis in the Information-based Practice of Students' Behavior Records in Apartment.**

As the saying goes, "one hundred people, all kinds", students from all over the world in life habits, behavior and other aspects produce all sorts of problems. College apartment is the main place for students to form correct outlook on life and values, which is conducive to the cultivation of students' behavior habits. The university must master the correct management methods to control and guide the students' behavior habits. Recording and storing the information of students' behavior in the platform of student apartment information management: Illegal behavior on the Internet, over-consumption behavior, interpersonal relationship status, late-returning behavior, absenteeism behavior, illegal use of electricity, etc.

#### **4.2 The Application of Cluster Analysis in the Routine Management of Apartment.**

Mobile Internet technology in modern apartment management service provides a ubiquitous, high-speed basic network environment for apartment managers, teachers and students in the campus at anytime, anywhere to access and process the network information. Besides, it provides open basic network conditions for the modernization of apartment routine management. College student apartment is the central area of students' life. The big data era has brought challenges to the management of traditional college students' apartment as well as opportunities. Faced with the challenges of inadequate infrastructure, low utilization rate and low talent pool, the application of modernization in routine management of apartment can be carried out from the aspects of innovation of service concept, innovation of service mode, improvement of management personnel

quality, innovation of purchasing technology of dormitory supplies and application of data analysis to student safety management.

The wide use of the AAP in the Logistics Service Hall allows managers to gather timely information on client needs: facility repairs, service evaluations, Management Recommendations, service complaints, etc. It can provide support for intelligent application through cluster analysis, and provide scientific decision basis for the competent functional departments and school leaders through data mining and analysis.

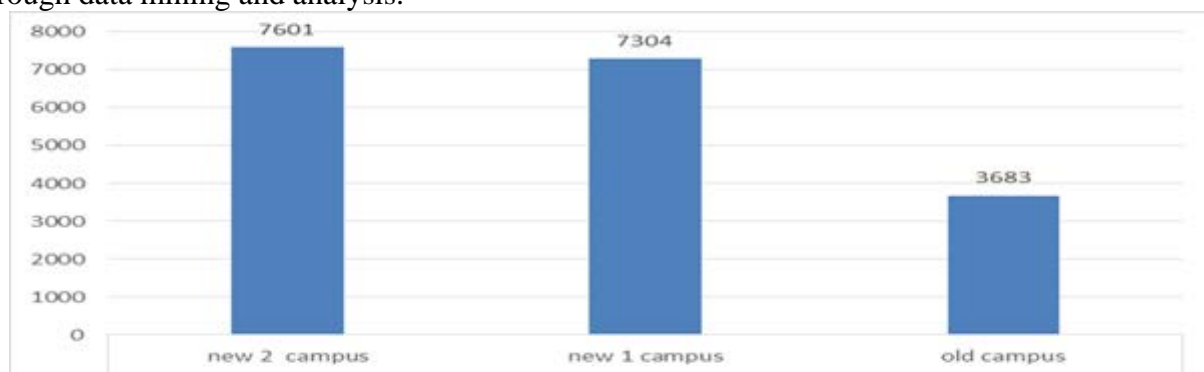


Fig.1 The annual maintenance quantity statistics apartment center

With the help of cluster analysis thinking and method, all kinds of resources are organized, developed, utilized and integrated in an all-round way, which improves the efficiency of internal operation, perfects the safety mechanism, and helps to change the operation mode and management mode of apartment. In this way, apartment management can enter into modern practice as soon as possible.

### 4.3 The Application of Cluster Analysis in the Humanistic Practice of Apartment Security Service

As the saying goes, "when a creature of a feather gathers, one is divided into groups." By classifying freshmen with big data's living habits, the refinement of student management has been achieved. Through the investigation and collection of students' personal information and the analysis of students' information by means of large number technology, the contradictions and problems caused by the differences in living habits are solved to some extent. Using the accommodation matching system, schools can use the system to collect basic information and schedule for new students, such as height, weight, moral character, hygiene habits, personality traits, learning characteristics, talent, social preferences, and other personal issues to help assess the similarity of new students. After collecting the students' personal information, we analyzed the students' information through the model organized by big data, and surveyed the students' actual preferences (the sampling survey chart<sup>8</sup> showed that 1000 students were most concerned about the three characteristics of roommates). Assign dorms to freshmen as humanized as possible in the same college.

Although it can not "complete its contribution to the battle" , but also can be called by the time, according to the new situation. Because it is no longer simply based on a simple number order and surname order to arrange the accommodation, but according to the new life habits and accommodation preferences of the allocation of dormitories, which strives to let each student live comfortably to adapt to college life as soon as possible. Imagine what a wonderful thing it would be to live with students with the same habits, similar tempers and similar interests.

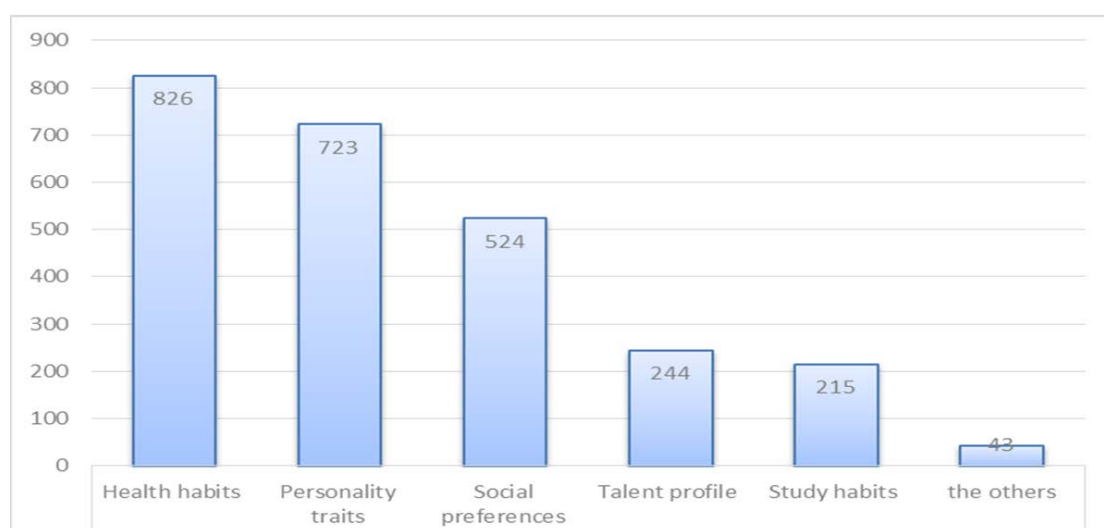


Fig.2 The results of the survey clustering histogram

## 5. The Application Prospect of Cluster Analysis in the Management of College Students' Apartment

The ultimate goal of the university student apartment management service is to pursue the highest efficiency, the best quality and the best realm, and to create To create an all-time, all-business, all-service study and living environment for the whole school teachers and students in the apartment. With the development of 5G mobile Internet, quantum communication, satellite remote sensing positioning, big data and cloud computing, geographic information system and other high-tech development, intelligent apartment management in colleges and universities has become technically possible. And the digitalization of apartment management information is an inevitable choice in promoting the construction of intelligent apartments in colleges and universities. In the long run, the correct application of cluster analysis on the basis of effective use of big data's technology is an inevitable requirement for the healthy and sustainable development of intelligent apartments.

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