STUDY OF DATA MINING TECHNIQUES FOR STUDENT

INFORMATION SYSTEM

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Abstract:*An organized and systematic solution is essential for all universities and organization. In every institutes or colleges the records of students are maintained. It is tedious job to maintain such a huge data manually. Student management system provides the simple interface for maintaining student's information right from the time of admission till the completion of their courses. This system maintains not only the academic but also details regarding extra-curricular activities, placement details and other resources. It also have the faculty details, student details in all aspects and the various academic notifications and events organized to the staff and students by the college administration.*

Key Words:**Data mining, classification, clustering, decision tree, Associative rule.**

1.INTRODUCTION

The student information system is designed using data mining techniques and implemented to replace the paper work. The staff are able to directly view the information about the student, but the updation, validation before promoting the student to next year is done by the class teacher. The authority to the staff member as class teacher is provided by the head of the department. The notices regarding college events and notification to staff and student updated by college administration. The system uses user authentication, displaying only information necessary for an individual's duties. Additionally each sub-system has authentication allowing authorized user to create or update information in that sub-system. All the data are reviewed and validated before actual records are altered on the server. In addition to a staff user interface, the system plans for student user interface, allowing user to access information and submit requests online thus reducing processing time. All data is stored securely on SQL server managed by college administrator and ensure highest possible level of security. The system features a complex logging system to track all user access and ensure conformity to data access guidelines and is expected to increase the efficiency of the college's record management thereby decreasing the work hours needed to access and deliver student records to user. Previously, the college relied heavily on paper records for this initiative. While paper records are a traditional way of managing student data there are several drawbacks to this method. First, to convey information to student it should be displayed on the notice board and the student has to visit the notice

board to check the information. Paper is a time taking process and difficult to manage and track. The physical exertion required to retrieve, alter and re-file the paper records are all non-value added activities.

This system provides a simple interface for the maintenance of student information. It can be used by educational institute or colleges to maintain the records of student easily.

2.LITERATURE REVIEW

Notably, student information system or SIS incurs such application software designed for educational establishments to manage student data. Student information system provide capabilities for entering student academic data, sending important notices as well as managing many other student related data needs within the institution. Thus, many of these systems applied in the Philippines can be scaled to different levels of activity and can be configured by their home institutions to meet local needs. Moreover, before universities have created their own bespoke student record system, but with growing complexity in the business of educational establishments, organizations now choose to buy customizable within the shelf software. It can be that, modern student information system are usually server based, with the application residing on central computer server and are being accessed by client application s at various places within and even outside the school. During the year 1990,s student information system have been changing and are fast adopted through the presence of a web medium as a channel for accessing SIS without any hassle upon viewing student details and information.

Ideally, educational institutions are constant pressure to demonstrate both willingness and capacity to incorporate the latest developments in student information system along with communications technology supporting various teaching ways. As Liao et al, (2007) asserts that SIS process with such technological sophistication does create precise knowledge edge, that such SIS application can be appealing to student and to the academic faculty as well as the parent s. Thus, believing that technology is the repository of the bulk of the information that underpins society's major enterprises and concern and the medium of communication through which SIS interact with one another.

Furthermore, Student Information System is transforming educational tactics understanding and school practices in relation to system information and to be assist better communication ground through Student Information System execution, as found within the heart of learning mechanisms (Liao et al., 2007). Student Information System as of today is changing what people learning upon such as with the burgeoning of the internet, the control exercised in the past by the Philippines from various departments of education and by individual teachers over pedagogical content may have diminished significantly. Through this new informative medium, resources of varying quality and provenance on virtually diverse subject matter are now available to the students. The amount of material available from unaccredited sources is cause of considerable concern to many educators, brought up them into a more integrated student information system such those found and applied in the university of the Philippines as well as those within the ground of Ateneo Integrated school Wherein SIS processes of were truly understood and realized by the institutions education system.

3. DATA MINING TECHNIQUES

Data mining, also popularly known as Knowledge Discovery in Database, refers to extracting or "mining" knowledge from large amounts of data. Data mining techniques are used to operate on large volumes of data to discover hidden patterns and relationships helpful in decision making. While data mining and knowledge discovery in database are frequently treated as synonyms, data mining is actually part of the knowledge discovery process.

3.1. Classification

Classification is the most commonly applied data mining technique, which employs a set of pre-classified examples to develop a model that can classify the population of records at large.

3.2. Clustering

Clustering is a division of data into groups of similar objects. Representing the data by fewer clusters achieves simplification. It models data by its cluster.

3.3. Decision Trees

Decision tree is tree-shaped structures that represent sets of decisions. These decisions generate rules for the classification of a dataset. Specific decision tree methods include   the Classification and Regression Trees (CART) and Chi Square Automatic Interaction Detection (CHAID).

3.4. Association rule

Association and correlation is usually to find frequent item set findings among large data sets. This type of finding helps businesses to make certain decisions, such as catalogue design, cross marketing and customer shopping behavior analysis.

4.PROPOSED SYSTEM FOR STUDENT INFORMATION SYSTEM.

The proposed system is user friendly because the retrieval and storing of data fast and data is maintained efficiently. By using data mining techniques security is provided to records so that is not visible to the unauthorized person, the person who has authority to see the details of student only those person able to see it. The data mining techniques are used to check   whether the person is authorized or not if he is authorized then only he or she can view the data of the student. The administrator of the system is the principle of the college or institute. The role of principal is to assignauthority as Head of the Department from the staff member. Along with class teacher the HOD creates the supporting staff.   The Authorized members can view the data of entire class using clustering technique of data mining where the data of student is maintained according to the year and the class.
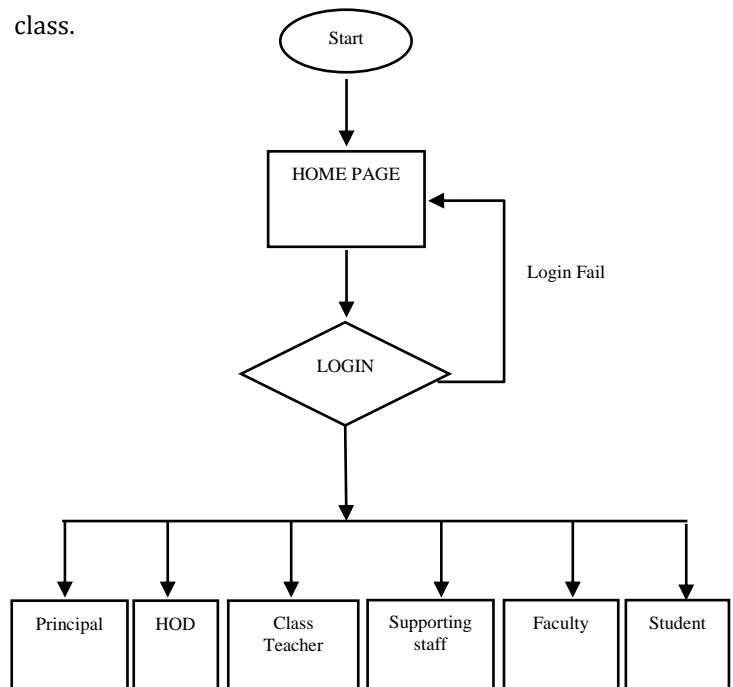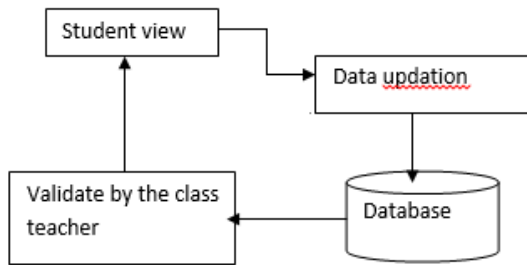

Fig 1: Data flow diagram

Fig 2: Flow for student data updation

At the time of student registration the supportingstaff registers the student and provide use The student has to login with the user id and password decided at the time of registration, the updation of the academic results and extra circular activities at each semester. The validation is provided by the authorized class teacher using decision tree technique of data mining and the students are promoted to the next year if the condition is for the year is satisfied. The classification technique is used in student information system to view the student which are promoted to next year and those who do not satisfy the condition. Security is provided so that unauthenticated person will not be able to access the records.

5. CONCLUSION

In the Student Information System the process of searching is work efficient with the help of data mining techniques. With the use of the Data mining techniques for Student Information System   such as clustering, classification, decision tree there is no or very few paper work is done, along with this the work of staff members is reduced. The student information   system provides security for records (student details). With the use of data mining technique such as decision tree the student data is not visible to unauthorized person who not have authority to see the details of student those person able to see it. The

notices regarding to any technical programs, updation of semester marks is done on email or message. All the notices that are send by higher authority on email id or on the mobile of the student and teacher staff belonging to that department. The further updation can be done to the system by including the attendance record of each student in the institute. The system can be designed for further enhancement. In future we can also maintain the records for the internal marks for each subject of each student. The system can be enhanced depending upon the need of the institute or organization.

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