Adaptive Exam Automation System Using Data Mining Techniques

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1. Abstract : The education is the process of acquiring knowledge through learning. In education system examination are conducted on periodic basis in every educational institution. It should be systematic and proper. So manual conduction of examination is always tedious and cumbersome. All these problems can be solved by the examination system using data mining techniques. By using this the coordinators of the examination can conduct by examination systematically. By computerizing the examination system, the examinations are conducted smoothly error free and properly. This project is applicable to examinations conducted in colleges, schools or any other institutions conducting examinations. This project deals with the automation of whole process of examination work such as adding the details of the student, invigilators, question papers, class room, displaying result etc. and preparing examination Schedules, absentees list, invigilator allocation list, class room allocation list and roll no list etc.

Index Terms—Component, formatting, style, styling, insert. (key words)

2. Introduction

Exam Automation System is specially design for the management of exam system. This system is deal with the whole process of exam online instead of manually. This application will be used for the seating arrangement of students on basis of roll number of students, number of class room and number of benches in the class rooms. This application can also be used in invigilator duty at the time of exam on the basis of number of lecturers in the collage. This application can also send the mail to the lecturers on duty. This application can do work on data entry after exam it display result according to the roll number, subject wise marks, subject wise result. It also displays weather the student is pass or fail and the division. Due to some drawbacks and limitations of manual work of exam process we decided to develop the computerized system with online facility because the system needs data regardless of their location. The proposed system provides managing of huge data effectively and efficiently for efficient results, storing the details of student, lecturers and displaying notice etc. in such a way that the data can be modified.

The proposed system is user friendly because the retrieval and storing of data is fast and data is maintained efficiently. Moreover the graphical user interface is provided in the propose system, which provides user to deal with the system very easily. Reports can be easily generated in the proposed system. This means that two or more persons can used the same data in existing system provided that they have right to access that data. Also the two or more departments in an organization can easily interact with each other without the actual movement of the data.

3. Literature review

Data mining techniques provide a popular & powerful tool set to generate various data driven classification systems. [3] Er. Rimmy Chuchra.(2012), Use of Data Mining Techniques for the Evaluation of Student Performance: A case study, International Journal Of Computer Science and Management Research vol 1 is already studied about combined use of self-organizing maps & no smooth, non convex optimization techniques in order to produce a working case of a data driven risk classification system. The optimization approach strengthens the validity of self organizing map results. This study is applied to cancer patients. Cancer patients are partitioned into homogenous groups to support future clinical treatment decisions. Most of the different approaches to the problem of clustering analysis are mainly based on statistical, neural network, machine learning techniques. Bagirovetal. propose the global optimization approach to clustering and demonstrate how the supervised data classification problem can be solved via clustering. The objective function in this problem is both nonsmooth and non convex and has a large number of local minimizes. Due to a large number of variables and the complexity of the objective function, general purpose global optimization techniques, as a rule fail to solve such problem. It is very important therefore, to develop optimization algorithm that allow the decision maker to find
“deep” local minimizes of the objective function. Such deep minimizers provide a good enough
description of the data set under consideration as far as clustering is concerned. Some automated rule
generation methods such as classification and regression trees are available to find rules describing
different subsets of the data. When the data sample size is limited, such approaches tend to find very
accurate rules that apply to only a small number of patients.

Data mining in higher education is a recent research field and this area of research is gaining popularity
because of its potentials to educational institutes. gave case study of using educational data mining in
Module course management system. They have described how different data mining techniques can
be used in order to improve the course and the students’ learning. All these techniques can be applied separately in a same system or together in a
hybrid system. have a survey on educational data mining between1995 and 2005. They have compared
the Traditional Classroom teaching with the Web based Educational System. Also they have discussed
the use of Web Mining techniques in Education systems. have a described the use of k-means clustering algorithm to predict student’s learning activities. The information generated after the
implementation of data mining technique may be helpful for instructor as well as for students. discuss
how data mining can help to improve an education system by enabling better understanding of the
students. The extra information can help the teachers to manage their classes better and to provide
proactive feedback to the students.

4. Advantages

Due to some drawbacks and limitations of manual work of exam process we decided to develop the
computerized system with online facility because system needs data regardless of their location.
Following are some Current solutions to enhance the application. To overcome the drawbacks and
limitations of existing system.

A. Easiness in modification of data:

The proposed system provides managing of huge data effectively and efficiently for efficient results,
storing the details of the students, lecturers etc. in such a way that the database can be modified.

B. User friendly:

The proposed system is user friendly because the retrieval and storing of data is fast and data is
maintained efficiently. Moreover the graphical user interface is provided in the proposed system, which
provides user to deal with the system very easily.

C. Reports are easily generated:

Reports can be easily generated in a proposed system. So any type of reports can be generated in
a proposed system, which helps the managers in a decisions-making activity.

D. Sharing the data is possible:

Data can be shared in proposed system. This means that two or more persons can use the same
data in existing system provided that they have right to access that data. Also the two or more
departments in an organization can easily interact with each other without the actual movement of
data.

E. No or very few Paperwork:

The proposed system either does not require excel work or very few paper works is required all
the data is feted into the computers. Since all the data is kept in a database no data of the
organization can be destroyed. Moreover work becomes very easy because there is no need to keep
data on papers.

5. Process in examination system

The Web mining usage in the development of web based adaptive educational system is a laborious
activity. The developer, usually the admin stored the data into the database about students as well as
invigilators. Admin give authority to particular subject teacher to enter the marks of students. All
these data stored into database. After data pre-processing, apply data mining techniques on that
data. It gives the appropriate result as per requirements. The results of these complexity decisions, taking design in one-shot is hardly feasible, even when carefully done. In many cases probably need evaluation and possibly modification of content, structure and navigation based on students’ usage information, preferably even following a continuous empirical evaluation approach. To facilitate this, data analysis methods and tools are used to observe students’ behaviour and to assist instructors in detecting possible errors and shortcomings and in incorporating possible improvements. Traditional data analysis in adaptive educational system is hypothesis or assumption driven. It is very difficult for the user to find more complex patterns that relate to different aspects of the data. An alternative to this traditional data analysis is to use data mining in an inductive approach to automatically discover hidden information present in the data. Web mining, in contrast, discovers the hypothesis automatically from the extracted data rather than research-based or human-driven. It discovers interesting patterns and tendencies in student’s usage information. The mined knowledge enters the system and guide, facilitate and enhance learning as a whole, not only turning data into knowledge, but also for decision making. The web usage mining in web based adaptive educational system process consists of four steps like the process of general data mining as follows and depicted in Figure 1.

Potential user of proposed system is user friendly because the retrieval and storing of data is fast and data is maintained efficiently. Moreover the graphical user interface is provided in the propose system, which provides user to deal with the system very easily. Reports can be easily generated in the propose system. By using data mining techniques the coordinators of the examination can conduct by examination systematically. By computerizing the examination system, the examinations are conducted smoothly error free and properly. The information generated after the implementation data mining techniques may be helpful for instructor as well as for students. This project is applicable to examinations conducted in colleges, schools or any other institutions conducting examinations. This project deals with the automation of whole process of examination work such as adding the details of the student, invigilators, question papers, class room etc. The objective of the proposed system is to give the whole process of exam online instead of manually. This application will be used for the seating arrangement of students on basis of roll number of students, number of class room and number of benches in the class rooms. The proposed system provides managing of huge data effectively and efficiently for efficient results, storing the details of student, lecturers etc.

**fig 1. Data processing**

**Data collection:** The CMS system is used by students and the usage and interaction information is stored in the database. This paper discusses the usage of students’ data in the Moodle system.

**Data pre-processing:** Data is cleaned and transformed into an appropriate format to be mined. In order to pre-process the Moodle data, we can use a database administrator tool or some specific pre-processing tool.

**6. Advantages**

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7. Future scope

The Exam Automation System is dynamically based we can also add further more facilities. To improve the module in future point of view we can further add:

- The system can be designed for further enhancement .This could also be developed according to the growing needs of the Examination Centers’ who conducts test, or etc.
- This system are implement in future for to generate university exam for 1000’s of student & maintain record easily.
- In future we can generate the Mark sheet of whole Information of Student.
- We can generate internal marks of the student by performance of their practicals, sessionals, attendance, common test, etc.

8. Conclusion

From a proper analysis of a positive points and constraints on the component, it can be safely concluded that the system is highly efficient .The system easily maintain the student and staff profile and also maintain the student records. The main aim of “Exam Automation System” is to develop a student interaction system that multiple registered colleges can use and establish communication link between different entities of the education system. It is a distributed application that runs from a web application server that connects the current students and the college management and allows them to communicate for a productive purpose. It will perform basic functionalities need to be performed during college activities more effectively and efficiently. This application is developed in consideration about today’s system which is manual and time consuming as there required in college.

9. References


