

Intelligent Assessment: A System That Predicts The Performance of The Student

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Abstract: *Every college manage their student records through their own management system. Currently, there are very less system that evaluates the performance of the system on the basis of their academic performance. Student failure and dropouts are a major problem nowadays. There are many factors that influence student dropout. Data Mining can used to predict and identify the dropouts. This system is capable of predicting the performance of student which helps the professor to identify students that are going to have bad performance and our about to fail. The proposed system predicts the evaluation of student performance through data mining techniques such as Decision tree, Fuzzy logic, Pearson Correlation, Ontological Reasoning.*

Keywords: *Student Performance, Decision Tree, Evaluation, Fuzzy logic, Data mining.*

1. INTRODUCTION

The data in educational institute is growing significantly. Presently the need to represent data in an integrated and consistent format is also increasing. So we propose a model on which data mining techniques can be applied to predict and enhance student academic performance. Data mining is a technique to find a relationship between variables or factors in the large amount of database. Here we implement the data mining techniques through classification approach to analyze student data. The information from a system can be rapidly assessed to find the performance of students. The data and information gained from the learning system can be used as a substantial indicator for monitoring of the potential student failure. Furthermore alerts can be sent to the parent and academic staff to intimate them about the performance of the student. The data in educational institute is growing significantly. Presently the need to represent data in an integrated and consistent format is also increasing. So we propose a model on which data mining techniques can be applied to predict and enhance student academic performance. Data mining is a technique to find a relationship between variables or factors in the large amount of database.

2. LITERATURE SURVEY

Chew Li Sa, Dayang Hanani bt. Abang Ibrahim, Emmy Dahliana Hossain, Mohammad bin Hossain (2016) have proposed system for student performance analysis. A data mining technique, classification algorithm is applied in this project to ensure the prediction of the student performance in course [1]. The system assists lecturers in identifying the students that are predicted to fail in the course. Other than that, SPAS assist lecturers to retrieve information of their students' performance throughout the semesters.

Sonali Shankar, Bishal Dey Sarkar (2016) focus on the average performance of the students be-longing to different countries is analysed based on different attributes such as organised events, chapters learned and number of days they interacted with the course [2]. The attributes are thus compared with the average grades of students of respective countries and it is concluded that the grades are not the only factor to represent the proper understanding of the course.

Brijesh Kumar Baradwaj, Saurabh Pal (2014) predict the students division on the basis of previous database [3]. As there are many approaches that are used for data classification, the decision tree method is used here. Information like Attendance, Class test, Seminar and Assignment marks were collected from the students previous database, to predict the performance at the end of the semester. This study will help to the students and the teachers to improve the division of the student. This study will also work to identify those students which needed special attention to reduce fail ration and taking appropriate action for the next semester examination.

Puja Thakkar, Anil Mehra, Manisha (2015) reveals some significant areas in education field, where prediction with data mining has reaped benefits; such as finding set of weak students, determining students satisfaction for a particular course, Faculty Evaluation, Comprehensive student evaluation, Predicting students' dropout [4].

Kamaljit Kaur and Kuljit Kaur (2015) investigates the possibility to predict the subject wise success rate of students in CBCEGS with the help of

contemporary tools of data mining. Weka 3.6.12 is used as a contemporary data mining tool [5]. The results show that decision tree model (especially CART) supplemented by ensemble classifier Ada Boost provide high accuracy in prediction of students' grades in a course on the basis of performance of a student in the three tests conducted during the semester for two different datasets.

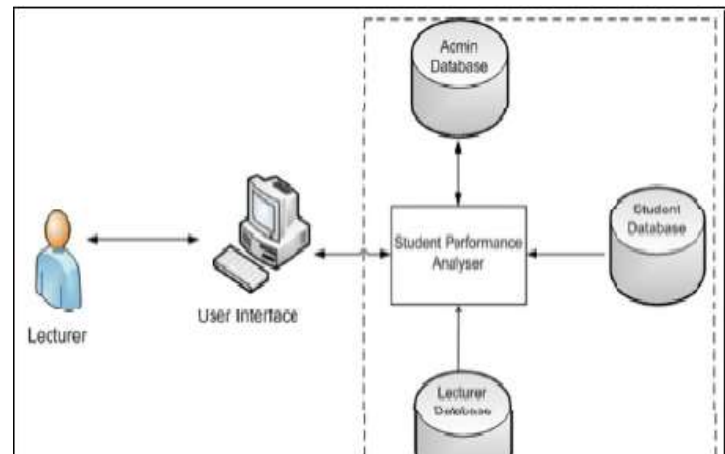
T. Jeevalatha, N. Ananthi, D. Saravana Kumar (2014) states that C4.5, ID3 and CHAID data mining techniques were implemented on students data. From the survey it is proved that Decision tree algorithms are applied on students data for analysing the students placement selection [6]. The efficiency of different decision tree algorithms was analysed based on the accuracy. From the results it is found that ID3 algorithm is appropriate for predicting student placement. ID3 gives 95.33 percentage prediction which is higher than C4.5 and CHAID algorithm.

Zahyah Alharbi, James Cornford, Liam Dolder and Beatriz De La Iglesia (2016) The primary goal of this work was to predict students that are at a high risk of not achieving a good honours degree, but more importantly, to identify this as early as possible in year 1 so that interventions can be proposed [7]. The researchers have been able to achieve this goal with reason-able accuracy by using classification models to highlight the students that are predicted to be low achievers with high probability.

Shaalena K.P, Shaiju Paul (2015) predict the performance of a student is been discussed. Several white box classification methods like decision trees and rule induction algorithms is been discussed [8]. The problem of imbalanced data is solved by data rebalancing followed by cost sensitive classification. These methods give results more easily to understand as they can explain their predictions in a higher level in the form of IF-THEN rules. Thus it is very easy for a non-expert data miner like a teacher to interpret the classification result.

Foteini Grivokostopoulou, Isidoros Perikos, Ioannis Hatzilygeroudis (2014) This works presents a methodology used to analyse students performance with the aim to predict final performance in the course and trace students that are underperforming or are in edge to fail the exams [9]. More specifically, all the students performance in the examinational tests conducted during the semester via the education system are analyzed and decision tree techniques are utilized in order to extract knowledge from the students performance and predict each students final performance.

3. ARCHITECTURAL DESIGN



There are a few features from the existing systems that are employed during the design and implementation phase of the proposed system. These features and functionalities include the user interface, students' performance prediction, illustration displays and report generation. A good user interface provides a user-friendly interface as it is easy to be navigate and not complicated. Meanwhile, the students' performance prediction is included into the proposed system to make sure the objectives are achieved. Furthermore, the generation of reports in Portable Document Format (PDF) and illustration display such as charts in PDF makes student performance analysis easier.

4. CONCLUSION

The proposed system concentrates on the development of a system for student performance analysis. A data mining technique, classification algorithm is applied in this project to ensure the prediction of the student performance. The main contribution of the Intelligent Assessment System is that it helps the lecturers in evaluating student performance. The system assists lecturers in identifying the students' that are predicted to fail in future. Other than that, Intelligent Assessment system assist lecturers' to retrieve information of their students' performance throughout the semesters.

REFERENCES

- [1] Chew Li Sa, Dayang Hanani bt. Abang Ibrahim, Emmy Dahlia Hossain, Mohammad bin Hossain, "Student Performance Analysis System", 2016 International Conference on Engineering and Technology.
- [2] Sonali Shankar, Bishal Dey Sarkar, "Performance Analysis of Student Learning Metric using K-Mean Clustering Approach", 2016 International Conference on Engineering and Technology.

[3] Brijesh Kumar Baradwaj, Saurabh Pal, "Mining Educational Data to Analyze Students Performance", International Journal of Advanced Computer Science and Applications, Vol 2. No. 6, 2011.

[4] Puja Thakkar, Anil Mehra, Manisha, "Performance Analysis and Prediction in Educational Data Mining: A Research Travelogue", International Journal of Computer Application (0975-8887), Vol. 110-No.15, January 2015.

[5] Kamaljit Kaur and Kuljit Kaur, "Analyzing the Effect of Difficulty Level of a Course on Students Performance Prediction using Data Mining", 2015 1st International Conference on Next Generation computing Technologies.

[6] T. Jeevalatha, N. Ananthi, D. Saravana Kumar, "Performance Analysis of Undergraduate Students Placement Selection using Decision Tree Algorithms", International Journal of Computer Science, Vol.108-No.15, 2014.

[7] Zahyah Alharbi, James Cornford, Liam Dolder and Beatriz De La Iglesia, "Using Data Mining Techniques to Predict Students at Risk of Poor Performance", SAI Computing Conference, 2016.

[8] Shaalena K.P, Shaiju Paul, "Data Mining Techniques for Predicting Student Performance", 2015 International Conference on Engineering and Technology, 20th March 2015.

[9] Foteini Grivokostopoulou, Isidoros Perikos, Ioannis Hatzilygeroudis, "Utilizing Semantic Web Technologies and Data Mining Techniques to Analyze Students Learning and Predict Final Performance", 2014 International Conference on Teaching, Assessment and Learning.