

Review Article

TO FORECAST LEARNER USING MINING CLASSIFICATION TO EVALUATE TERTIARY EDUCATION

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Abstract

One of the most classification methods is data mining which mines the information when it is required from the remote client. This paper uses different data mining methods which are used for predicting the performance of the students in their modern education system. This surely helps the student performance in both academic and non-academic criteria. Hence, modern educational development authority board requires these recent methodologies to analyze the performance as well as the behavior of each student in school or universities. This survey illustrates various conventional methods for analyzing and predicting the student’s performance using various data mining techniques.

Key Words: Data Mining, Prediction, Academic, Educational, Client.

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INTRODUCTION

Data Mining mines the information when it is required from the remote client. This paper uses different data mining methods which are utilized by different strategies for improving the utilization ratio in educational institutions. It will enhance the activities in both academic and non-academic criteria as the statement in Cesar et al. 2009. Hence, modern educational development authority board requires these recent methodologies to analyze the performance as well as the behavior of each student in school or universities. This system will collect all the required details from each student in class based on the already prepared questionnaire system method. This produces different questionnaire pattern for every student in class and stores all these information to the local as well as remote server. (Cristobal Romero et al. 2010). These kinds of information data should be more secured and hence no one without prior permission cannot access this information in both remote and local server.

Further, suitable data mining method was applied on the collected information on both remote and local server. This will fetch the suitable information for analysis system and based on this analysis survey on these areas, the modern system will be designed with all improvements.



Figure 1: Data Mining with Other Techniques

The correlation of the present method with other techniques such as an artificial intelligence, statistics and machine learning algorithms is illustrated in Fig.1.

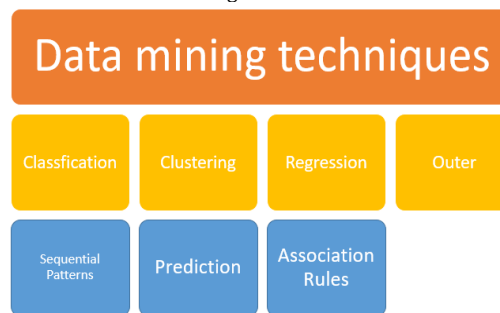


Figure 2: Different Sub Techniques in Data Mining

Fig.2 shows different sub techniques in Data mining can be categorized with respect to various functional activities as stated below.

- Classifications
- Clustering
- Regression
- Outer
- Sequential patterns
- Prediction
- Association rules

RELATED WORK

Abdul Fattah Mashal et al. (2013) developed association rules for improving admission of students in various research schools throughout various locations. The strategies for different admission systems were correlated through the different constraints. These attributes were connected and analyzed for better education data activities in various universities through this educational data mining methodologies. Support and confidence were the two important behavioral attributes of the

King a Abdulaziz University educational system. Figure 3 shows the Accessing the method stated in conventional approach.

The student application acceptance and rejection from this university data were also analyzed and based on the results which were obtained in this scenario are illustrated as,

- Students Gender (G)
- Students high school performance
- Students grade in high school
- High school study type

These parameters were also analyzed along with the student application status of accepted or rejected. At the end of this analysis, the authors found only 40% of applications were selected for university studying system.

Fadhilah Ahmad et al. (2015) used educational data mining approaches which are installed or interfaced with many popular universities which help to promote the student activities from various slow learners countries. The authors conducted a research analysis for first year computer science students in under graduate higher educational system. The authors collected 8 years of student's information of demographics of each student in educational institutions, their performance with respect to subject wise. The proposed method was applied on different educational methods and finally the authors obtained 71.3% of accuracy for their proposed method. Figure 4 shows the data mining incorporating data selection.

Parneet Kaur et al. (2015) predicted slow learners among the various conditions or constraints studying in a university or higher educational institutions. This methodology helped the university educational system for improving the educational activities to the higher level. The authors collected the student information and then data mining techniques were applied on these data to find the slow learners using WEKA open access tool. The authors achieved 75% of detection accuracy by using multilayer perception data mining technique and also achieved 65.13% of detection accuracy which was based on rule incorporating method on the collected student's data. Figure 5 shows the analyzing the student reality based on decision.

Astha Soni et al. (2018) designed a methodology for analyzing the student's behavior and their background using various data mining techniques. The students past performance in their lower educational institutions with their family background information were analyzed for certain period of duration. The authors applied Support Vector Machine (SVM) and decision tree classification algorithm on the collected set of data to acquire the required student data. The authors claimed 77% of average accuracy by using their proposed method. In this work, the authors considered 2000 students from different educational institutional and 50 attributes were considered for this analysis. Harleen Kaur et al. (2018) used soft computing approaches such as SVM and Naïve Bayes classification method for classifying and predicting the strategies of the various forms. The developed approach was tested on various test beds tracking system for developing error free or tolerable system. The types of different data mining methods are illustrated in Fig.6.

Asif et al. (2017) constructed the heuristic logic for constructing the recent or present educational system. The student's data with their respective achievements were collected from each and every student from the university institution. Then, the predictions were combined with the collective data on the prediction model with uncertainty. By these collective data on remote and local server, the prediction of student behavior as well as their performance in studies with respect to both academic and non-academic activities.

RESULTS AND DISCUSSIONS

The experimental results shows the actual environments the proposed methods still maintain robust and good results. In this sector a performance of the proposed mining techniques is estimated and compared with the existing mining techniques in term of quantized measure and time complexity.

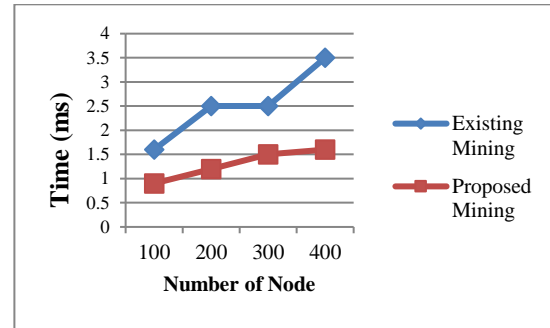


Figure 1: Execution Time of Existing and Proposed Mining Techniques

CONCLUSIONS

This paper uses different data mining methods which are used for predicting the performance of the students in their modern education system. This surely helps the student performance in both academic and non-academic criteria. Hence, modern educational development authority board requires these recent technique or approach for selecting the suitable format as well as the behavior of each student in school or universities.

REFERENCES

1. Abdull Fattah Mashal, Mohammed M. Fouad, Philip S. Yu, Tarek F. Gharib, (2013). "Discovery of Association Rules From University Admission System Data", IJ. Modern Education and Computer Science, 4,1-7.
2. Fadhilah Ahmad, Nur Hafieza Ismail and Azwa Abdul Aziz, (2015). "The Prediction of Students' Academic Performance Using Classification Data Mining Techniques", Applied Mathematical Sciences, Vol. 9, 2015, no. 129, 6415 – 6426.
3. Parneet Kaur, Manpreet Singh, Gurpreet Singh Josan, (2015). "Classification and prediction based data mining algorithms to predict slow learners in education sector", Procedia Computer Science, 57,500 – 508.
4. Astha Soni, Vivek Kumar, Rajwant Kaur, D. Hemavathi, "Predicting student performance using data mining techniques", International Journal of Pure and Applied Mathematics, Volume 119 No. 12 2018, 221-227.
5. Harleen Kaur, Gourav Bathla, "Student Performance Prediction Using Educational Data Mining Techniques", International Journal on Future Revolution in Computer Science & Communication Engineering, Volume: 4 Issue: 12, 2018.
6. Asif, R., Merceron, A., Ali, S. A., &Haider, N. G. (2017). Analyzing undergraduate students' performance using educational data mining. Computers & Education, 113, 177-194.
7. Cesar V., Javier B., liela S., & Alvaro O., Recommendation in Higher Education Using Data Mining Techniques, In Proceedings of the Educational Data Mining Conference, 2009.
8. Cristobal Romero & Sebastian Ventura, "Educational Data Mining: A Review of the State of the Art," IEEE Transactions on Systems, Man, and Cybernetics—Part c: Applications and Reviews, vol. 40, no. 6, 2010, pp. 601-618.
9. Jai Ruby & K. David, "A study model on the impact of various indicators in the performance of students in higher education", IJRET International Journal of Research in Engineering and Technology, Vol. 3, Issue 5, May-2014, pp.750-755.
10. Ghosh A, Ghosh T. "Herbal Drugs of Abuse." Systematic Reviews in Pharmacy 1.2 (2010), 141-145. Print. doi:10.4103/0975-8453.75060