Abstract

Data mining applications are becoming a more common tool in understanding and solving educational and administrative problems in higher education. Generally, research in educational mining focuses on modeling student’s performance instead of instructors' performance. One of the common tools to evaluate instructors' performance is the course evaluation questionnaire to evaluate based on students’ perception. In this study, classification algorithm of Naïve Bayes, K-Means clustering and C5.0 are used to build classifier models. Their performances are compared over a dataset composed of responses of students to a real course evaluation questionnaire and students final examination results using accuracy, precision, recall, and specificity performance metrics. Although all the classifier models show comparably high classification performances, Naïve Bayes classifier is the best with respect to accuracy, precision, and specificity.

References
Predicting Instructor Performance using Naïve Bayes Classification Algorithm in Data Mining Technique

1. Mustafa agaoglu” Predicting Instructor Performance Using Data Mining Techniques in Higher Education” volume 4, 2016 IEEE
2. Ahmed Mohamed Ahmed, Ahmet Rizaner,Ali Hakan Ulusoy“ Using data mining to predict instructor performance” International Conference on Application of Fuzzy Systems and Soft Computing, ICAFS 2016
3. Anwar Muhammad Abaidullah, Naseer Ahmed, and Edriss Ali “Identifying Hidden Patterns in Students Feedback through Cluster Analysis” International Journal of Computer Theory and Engineering, Vol. 7, No. 1, February 2015
4. Monika Goyal and Rajan Vohra” Applications of Data Mining in Higher Education” IJCSI International Journal of Computer Science Issues, Vol. 9, Issue 2, No 1, March 2012
5. Ahmad Ashari, Iman Paryudi, A Min Tjoa” Performance Comparison between Naïve Bayes, Decision Tree and k-Nearest Neighbor in Searching Alternative Design in an Energy Simulation Tool” International Journal of Advanced Computer Science and Applications, Vol. 4, No. 11, 2013
6. Randa Kh. Hemaid, Alaa M. El-Halees” Improving Teacher Performance using Data Mining” International Journal of Advanced Research in Computer and Communication Engineering Vol. 4, Issue 2, February 2015
7. B. Minaei-Bidgoli, D. A. Kashy, G. Kortemeyer, and W. F. Punch, “Predicting student performance: An application of data mining methods with an educational Web-based system,” in Proc. 33rd Annu. IEEE Frontiers Edu., vol. 1. Nov. 2003, p. T2A-13.
8. V. Kumar and A. Chadha, “An empirical study of the applications of data mining techniques in higher education,” Int. J. Adv. Computer. Sci. Appl., vol. 2, no. 3, pp. 80_84, 2011.
9. C. Romero and S. Ventura. “Educational data mining: A survey from 1995 to 2005,” Expert Syst. Appl., vol. 33, pp. 135_146, Jul. 2007.
10. B. K. Baradwaj and S. Pal, “Mining educational data to analyze students' performance,” Int. J. Adv. Comput. Sci. Appl., vol. 2, no. 6, pp. 63_69, 2011.
11. S. Calkins and M. Micari, “Less-than-perfect judges: Evaluating student evaluations,” NEA Higher Edu. J., pp. 7_22, Fall 2010.
12. J. Sojka, A. K. Gupta, and D. R. Deeter-Schmelz, “Student and faculty perceptions of student evaluations of teaching: A study of similarities and differences,” College Teach., vol. 20, no. 2, pp. 44_49, 2002.
13. L. Coburn. (1984). Student Evaluation of Teacher Performance, ERIC/TME Update Series. [Online]. Available: http://ericae.net/edo/ED289887.htm
14. S. A. Radmacher and D. J. Martin, “Identifying significant predictors of student evaluations of faculty through hierarchical regression analysis,” J. Psychol., vol. 135, no. 3, pp. 259_269, 2001.

Index Terms

Computer Science

Algorithms
Keywords

Performance evaluation, students final examination results, C5.0, Naïve Bayes classifier, K-Means Clustering.