

# Comparative Analysis of Various Techniques used for Predicting Student's Performance

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**Abstract:** Research in higher education is beginning to explore the potential of data mining in analysing data to give quality service and needs of their graduates. Thus, educational data mining emerges as one tools to study academic tool data to identify patterns and help for decision making with affecting education. 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 modelling students' performance instead of instructors' performance. One of the common tools to evaluate instructors' performance is the course evaluation questionnaire to evaluate based on students' perceptions. In this study, four different classification techniques, decision tree algorithms, support vector machines, artificial neural networks, and discriminant analysis– are used to build classifier models. Their performances are compared over a dataset composed of responses of students to a real course evaluation questionnaire using accuracy, precision, recall, and specificity performance metrics. Although all the classifier models show comparably high classification performances, accordingly, it is shown that many of the questions in the course evaluation questionnaire appear to be irrelevant. Furthermore, the analysis shows that the instructors' success based on the students' perception mainly depends on the interest of the students in the course. The finding of the study indicate the effectiveness and expressiveness of data mining models in course evaluation and higher education mining. Moreover these findings may be used to improve measurement instruments.

**Keywords:** Educational Data Mining (EDM), Machine Learning, Prediction Students' Academic Performance

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