Abstract

Predicting students' academic performance is very crucial especially for higher educational institutions. This paper designed an application to assist higher education institutions to predict their students' academic performance at an early stage before graduation and decrease students' dropout. The performance of the students was measured based on cumulative grade point average (CGPA) at semester eight. The students' course scores for core and non-core courses from the first semester to the sixth semester are used as predictor variables for predicting the final CGPA8 upon graduation using Neural Network (NN), Support Vector Regression (SVR), and Linear Regression (LR). The study has verified that data mining techniques can be used in predicting students' academic performance in higher educational institutions. All the experiments gave valid results and can be used to predict graduation CGPA. However, comparisons of the experiments were done to determine which approaches perform better than others. Generally, SVR and LR methods performed better than NN. Therefore, we recommend the adoption of SVR and LR methods to predict final CGPA8, and the models can also be used to implement Student Performance Prediction System (SPPS) in a university.
Thus, the study has used the models from SVR and LR methods for designing an application to do the prediction task.

References

1. Jiawei H, Kamber M. Data mining: Concepts and techniques, (the morgan kaufmann series in data management systems), vol. 2.: Morgan Kaufmann.

Index Terms

Computer Science Information Sciences
Keywords

Educational Data Mining, CGPA, Linear Regression, Neural Network, Support Vector Regression, Student Performance Prediction System