

Logistic Regression Based Model for Predicting Students' Academic Performance in Higher Institutions

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Abstract : In recent years, there has been a desire to forecast student academic achievement prior to graduation. This is to help them improve their grades, particularly for individuals with poor performance. The goal of this study is to employ supervised learning techniques to construct a predictive model for student academic achievement. Many academics have already constructed models that predict student academic achievement based on factors such as smoking, demography, culture, social media, parent educational background, parent finances, and family background, to name a few. This feature and the model employed may not have correctly classified the students in terms of their academic performance. This model is built using a logistic regression classifier with basic features such as the previous semester's course score, attendance to class, class participation, and the total number of course materials or resources the student is able to cover per semester as a prerequisite to predict if the student will perform well in future on related courses. The model outperformed other classifiers such as Naive Bayes, Support vector machine (SVM), Decision Tree, Random forest, and Adaboost, returning a 96.7% accuracy. This model is available as a desktop application, allowing both instructors and students to benefit from user-friendly interfaces for predicting student academic achievement. As a result, it is recommended that both students and professors use this tool to better forecast outcomes.

Keywords : artificial intelligence, ML, logistic regression, performance, prediction

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