

## A Machine Learning Model for Predicting Students' Academic Performance in Higher Institutions

**Authors :** Emmanuel Osaze Oshoiribhor, Adetokunbo MacGregor John-Otumu

**Abstract :** There has been a need in recent years to predict student academic achievement prior to graduation. This is to assist them in improving their grades, especially for those who have struggled in the past. The purpose of this research is to use supervised learning techniques to create a model that predicts student academic progress. Many scholars have developed models that predict student academic achievement based on characteristics including smoking, demography, culture, social media, parent educational background, parent finances, and family background, to mention a few. This element, as well as the model used, could have misclassified the kids in terms of their academic achievement. As a prerequisite to predicting if the student will perform well in the future on related courses, 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. With a 96.7 percent accuracy, the model outperformed other classifiers such as Naive bayes, Support vector machine (SVM), Decision Tree, Random forest, and Adaboost. This model is offered as a desktop application with user-friendly interfaces for forecasting student academic progress for both teachers and students. As a result, both students and professors are encouraged to use this technique to predict outcomes better.

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

**Conference Title :** ICDSAAI 2022 : International Conference on Data Science and Artificial Intelligence

**Conference Location :** Los Angeles, United States

**Conference Dates :** October 27-28, 2022