

IED10

FACTORS ACCOUNTING FOR STUDENT PERFORMANCE

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Abstract

The issue of student academic performance is complex and influenced by both academic and non-academic factors. Although a lot of research has been done on traditional metrics like study hours and prior academic performance, newer studies highlight the increasing significance of elements like extracurricular activities, parental involvement, and sleep patterns in determining student outcomes. However, our knowledge of how these factors work together to affect academic achievement is lacking. This study uses a Performance Index as the dependent variable to investigate how five important factors, study hours, prior scores, extracurricular activities, guardian involvement, and sleep hours combine to affect student performance. The study attempts to present a comprehensive picture of the factors affecting student success by using a quantitative research design and Python to analyze a publicly accessible Kaggle dataset. The study used multiple linear regression (MLR), correlation matrix, descriptive statistics, and k-nearest neighbors (KNN) models to conduct the survey. The results of the KNN model with high predictive accuracy for the Performance Index are indicated by a low MSE (7.40208) and a high R^2 score (0.98). The findings highlight the value of organized study routines, past performance, involvement in extracurricular activities, and getting enough sleep, while also highlighting the complex role of guardian involvement.

Conference Track

Innovative Education