# ABSTRACT

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Predicting Students' Academic Success Using Artificial Neural Network

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In an effort to improve the quality and competitiveness of scholars, universities must have specific strategies to achieve its objectives. Implementation of these strategies would require preparation and adjustments to the problem at hand. For that matter, need early identification what factors affect the success of a student's study. The success of a student's study can be viewed with a grade point average (GPA) student. This study seeks to identify what factors are affecting the success of a student's study indicated by the GPA. These factors are then used as input in the GPA prediction model using Artificial Neural Network (ANN). This study was also conducted on the reduction of data dimension using Principal Component Analysis (PCA). Finally, this study compares the results of predicted GPA, with the input data that has not been reduced and data have been reduced. Correlation analysis show that only factors in the domain of university academic scores that have correlation values above 0.5. Factor that highly correlated to students' GPA is JUMLAH MUTU with highest correlation value: 0.921 for IPA group, 0.878 for IPS group, and 0.838 for IPC group. PCA reduced the data in IPA group from 21 variables to 14 variables, in IPS group from 21 variables to 13 variables, and in IPC group from 25 variables to 20 variables. Prediction models using ANN with unreduced data input resulting Mean Absolute Error (MAE): 0.047, 0.033, 0.373, for IPA, IPS, and IPC group, while MAE for prediction models with reduced data input are: 0.031, 0.028, 0.357 for IPA, IPS, and IPC group.

Keywords: Students' Success, GPA, Prediction, Artificial Neural Network (ANN), Principal Component Analysis (PCA)