This research is on the use of a decision tree approach for predicting students" academic performance. Education is the platform on which a society improves the quality of its citizens. To improve on the quality of education, there is a need to be able to predict academic performance of the students. The IBM Statistical Package for Social Studies (SPSS) is used to apply the Chi-Square Automatic Interaction Detection (CHAID) in producing the decision tree structure. Factors such as the financial status of the students, motivation to learn, gender were discovered to affect the performance of the students. 66.8% of the students were predicted to have passed while 33.2% were predicted to fail. It is observed that much larger percentage of the students were likely to pass and there is also a higher likely of male students passing than female students