

## ABSTRACT

*Telkom University is one of the best Private Universities (PTS), where one of the available Study Programs is Information Systems (IS). The IS Study Program has a website called the Pilih Peminatan (PIPE) application, one of the features in PIPE is the prediction of student graduation in order to monitor student progress based on academic data records, but this feature requires development in terms of implementing graduation prediction algorithms, and has other features also for the selection of specializations in the IS Study Program. The solution to this problem can be by building a graduation prediction model based on academic data records on the influence of the selection of specializations. It takes the whole process of extracting large amounts of data, to be processed and produced data input using KDD. Where patterns and settlement rules in building predictions are data mining and is also one of the steps in the KDD process. One of the scientific fields that exist in learning data mining is machine learning to be able to solve problems automatically with new data so that it can be used continuously. The grouping of data mining used is based on the task, namely classification. The method used in classifying graduation predictions on time and late is by using a decision tree. The algorithm chosen in the decision tree is the C4.5 algorithm where the factor that has the highest influence (root node) is seen from the results of the gain ratio highest. The accuracy results obtained from the prediction results with the actual data are 94.11% where the factor that becomes the root node in the classification model decision tree is the number of credits passed, with a gain ratio of 1.71. The results have an influence on the selection of specializations, because the tendency of students to enter specializations (matches), is assessed based on the MK value of the specialization prerequisites, which is also one of the factors in building a graduation prediction model. Therefore, the results of this graduation prediction model can be applied continuously in PIPE applications.*

*Keywords— algoritma C4.5, decision tree, classification, graduation prediction*