

ABSTRACT

Telkom University is one of the higher education institutions in Indonesia that produce competent and competitive graduates at both national and international levels. One of the study programs in Telkom University is Industrial Engineering. The study program aims to keep the average waiting time as low as possible to maintain the study program accreditation possession. The problem arises when the average of waiting time of FRI in 2023 increases up to 3,89 months which is higher than the average in 2022 (3.72 months). Specifically, the average of student waiting time of Industrial Engineering Study Program is 4.16 months which is higher than the average of FRI waiting time. According to the Head of Industrial Engineering, several factors that may contribute to student having longer waiting are the lack of English Proficiency, longer study duration and student involvement in non-academic activities. Hence looking back to the current waiting time of the study program, the head of Industrial Engineering Study Program perceived this as a significant problem since it may detrimentally affect the accreditation possession. Based on this problem, it is necessary to prevent this problem by developing waiting time prediction model which can predict whether or not student will have waiting time of less than equal six months or more which is then incorporated into a dashboard.

The final project aims to develop a model prediction to predict the student waiting time by employing Naïve Bayes Algorithm. The final project also follows the data mining methodology of Knowledge Discovery and Database (KDD) and naïve bayes algorithm to develop the prediction model. The attribute predictors used to develop the model are gender, study duration, GPA, English Proficiency (EPrT) Score, and Student Activity Transcript (TAK) points. The attribute class is the student waiting time with the category of less than equal to 6 months or more than 6 months. The data are sourced from tracer study of 2016-2018 Industrial Engineering cohort alumni with the data split scheme of 80% for the data training and the data testing of 20%.

The result of this final project shows that the prediction model achieved the accuracy of 65.95%. The use of the tracer study data of 2016-2018 by using naïve bayes algorithm shows the precision and recall of 65% and 97% respectively. The predictive dashboard has two features to predict student waiting time, namely manual input and upload data in the form of excel. The dashboard designed for predicting student waiting time has been verified and validated, meeting user requirements.

The implication of the prediction model and dashboard will assist the Head of the Industrial Engineering Study Program in monitoring and predicting student waiting time. The results of the prediction model will be used as a tool to help the head of the industrial engineering study program to make decisions and devise appropriate strategies. This streamlined approach not only enhances the accuracy of waiting time predictions but also helps identify areas needing intervention or improvement, ultimately contributing to better learning outcomes and more effective academic management.

Keywords: Dashboard, Naïve Bayes, Prediction, Waiting Time.