Abstract

In the lecture process, each student is required to complete each course with several credits determined by the institution. Some courses are mandatory and optional. Elective courses have an impact on the focus of the research area to be taken. The selection of these things helps in the completion of the final project. Selection of courses that are not by the history of grades and expectations of students can cause difficulties in completing the final project. In this study, a recommendation subject system will be designed using the brute force method, association rule, and the ant colony optimization (ACO) method. The brute force method is used to obtain elective course recommendations based on historical grades. A priori algorithm in the association rule method is used to find the association of each chosen subject. While the ant cycle algorithm in the ACO method is used to optimize the rule search results as a recommendation for learning path taking elective courses. Then the results of the three algorithms are combined for better recommendation results. The results showed that the brute force algorithm can provide recommendations according to historical values. A priori algorithm in the association rule method can produce rules for each group of expertise and the ant cycle algorithm in the ACO algorithm can provide recommendations in the form of rules for selecting the subject and learning path for selected subjects. The results of combining the three algorithms can produce a choice of elective courses well.

Keywords: ***course recommendation, association rule, ant colony optimization (ACO), apriori, ant cycle, brute force***