

ABSTRACT

The Information Systems study program at Telkom University is a study program consisting of 2 domains, namely business and technology. Information systems bridge the gap between technical components (information and communication technology) and non-technical components (business and management). The Information Systems study program emphasizes how to utilize information and communication technology to solve problems faced by businesses or organizations and is able to provide solutions to help in making strategic decisions from the use of information technology in achieving organizational goals. The Information Systems study program at Telkom University provides seven specialization areas that are incorporated into two groups of expertise to support the focus of scientific fields for students. The specialization fields in the Information Systems study program are Enterprise System Development (ESD) and Enterprise Solution & Assurance (ESA). Currently, Information Systems Study Program students at Telkom University will make their choice of specialization in the field of specialization, which will continue until the preparation of the final project in the seventh semester. In the matter of choosing specialization, it certainly becomes difficult for fifth semester students, because there are students who choose specialization in order to avoid areas of specialization that are difficult or related to developers or follow the chosen specialization areas taken by the majority of friends, without considering the skills and factors the potential they have. This certainly will have an impact on the incompatibility of the specialization field with the interests and skills of these students, as a result many students have difficulty when completing the final project.

Therefore, in this study an analysis was made of the choice of specialization in the Information Systems study program at Telkom University by implementing data mining using the classification method. In this classification method, later it will use three types of algorithms such as the Naïve Bayes algorithm, this algorithm can handle quantitative data types and also discrete data. The second algorithm that will be applied is the K-Nearest Neighbor algorithm, this algorithm is one of the algorithms that is easy to understand and implement. The third algorithm that will be applied is the Iterative Dichotomicer 3 (ID3) algorithm, this algorithm is a method used to make a decision tree that has been developed by J. Ross Quinlan since 1986. In the process of data mining, it will certainly use several tools to help processing data and creating specialization websites such as RapidMiner which will assist in conducting analysis of data mining and prediction analysis and help create a Decision Tree. The second tool is Pentaho Data Integration, a software from Pentaho that can be used for ETL (Extraction, Transformation, Loading. Framework) that will be applied to create websites in the field of specialization, namely using Laravel, this is one of the php frameworks that are open source and display more elegant and designed to facilitate and speed up the process of making a website.

The application of data mining is expected to provide benefits to help predict students' specialization fields in accordance with their competencies. In determining the field of specialization of students set criteria such as the value of

prerequisite courses, choice one and choice of two fields of specialization in Information Systems Study Program students which are supporting factors for the student are accepted in the chosen specialization field. The decision will then produce a policy to determine which students are accepted in the chosen field of specialization in the first choice, so that the placement of student fields is in accordance with the specialization field that will be traveled while studying from the fifth semester in the Information Systems Study Program..

Keywords: Bachelor Information System, Specialization, Classification, Website.