

# IMPLEMENTING A DECISION SUPPORT SYSTEM USING THE TSUKAMOTO METHOD FOR STUDENT ACHIEVEMENT RANKING

(Case Study of Student Affairs, Yogyakarta University of Technology)

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## ABSTRACT

Student achievement data management at Yogyakarta Technology University currently faces challenges related to the efficiency and objectivity of assessments. The manual recording process or the use of basic spreadsheet applications often leads to data redundancy, risks of archive loss, and difficulties in quickly and accurately determining the rankings of outstanding students. The complexity of the assessment, which involves multiple variables such as activity level, role type, champion ranking, and competition scale, necessitates a system capable of handling data uncertainty. This study aims to develop a web-based Decision Support System (DSS) utilizing Fuzzy Tsukamoto logic. This method was selected for its ability to translate vague input data (such as achievement quality and competition density) into precise, rankable output values. The system was developed using the PHP programming language with the Laravel framework, a MySQL database, and a user interface based on Tailwind CSS. The outcome of this study is the SIMKATMAWA application, which automatically calculates achievement scores using predefined fuzzy-logic rules. Black Box testing demonstrated that the system functions as intended in managing data, calculating scores, visualizing data through an executive dashboard, and generating recapitulation reports. The implementation of this system has proven to enhance the efficiency of recapitulation time and increase transparency in determining the rankings of outstanding students.

**Keywords:** Decision Support System, Fuzzy Tsukamoto, Student Achievement, Laravel, Website.