

Implementation Of The Saw Method And K-Means Clustering In A Decision Support System For Determining Adaptive Learning Strategies For Deaf Students: A Case Study At SLB Negeri Jember

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ABSTRACT

The subjective and inconsistent student grouping process for deaf students (tunarungu) at SLB Negeri Jember highlights the need for a more systematic approach. This research develops a Decision Support System (DSS) using the Simple Additive Weighting (SAW) method integrated with K-Means Clustering, built on a Flutter, FastAPI, and MySQL architecture. Four criteria were used: Cognitive Ability (30%), Communication Ability (25%), Social Ability (20%), and Learning Motivation (25%), producing three student groups Smart, Sufficient, and Needs Assistance each with tailored learning strategy recommendations. Functional testing via Blackbox Testing yielded 100% Passed, UAT achieved 98.67%, and confusion matrix evaluation proved 100% decision accuracy against expert judgment, confirming the system as a valid, objective, and data-driven decision-making tool for teachers.

Keywords: *Decision Support System, Simple Additive Weighting (SAW), K-Means Clustering, Deaf Students, Adaptive Learning Strategy.*