## Early Detection System for Stunting in Toddlers Using the C4.5 Algorithm as an Effort to Reduce Stunting Cases at Sumberjambe Health Center

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## ABSTRACT

Stunting is a condition of impaired growth in toddlers due to chronic malnutrition, characterized by a height that is not appropriate for age. Based on SSGI 2022 data, Jember Regency has the highest stunting rate in East Java at 34.9%, exceeding the WHO standard (<20%). This study aims to design and develop an early stunting detection system for toddlers at Sumberjambe Public Health Center using the C4.5 algorithm method. The type of research used is quantitative research with a data mining approach using the C4.5 algorithm and the prototyping method. The objects of this study are the maternal cohort books and nutrition Excel application from Sumberjambe Health Center, which include 1,798 cases of both stunted and normal children. A total of 130 clean data entries were obtained through pre-processing. The data mining process resulted in a confusion matrix accuracy of 83.33% and generated 34 rules used as knowledge for the early stunting detection system. The system development using the prototyping method began with the communication stage through interviews, followed by quick planning by outlining the main features, quick design modeling by creating system flowcharts, data flow diagrams, database design, and user interface design. The prototype construction was carried out using PHP and Laravel 10, followed by black-box testing, then deployment, delivery, and feedback.

Keywords: Stunting, Toddler, Prototyping, Algorithm C4.5, Website