ABSTRACT

IMPLEMENTATION OF FUZZY TSUKAMOTO ALGORITHM AND MAMDANI ON THE DETERMINATION SYSTEM OF EMPLOYEE SALARY INCREASE

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PT. Cazh Technology Innovation is currently in determining employee salary increases using Microsoft Excel and without any calculation criteria that become employee benchmarks which can disrupt the objectivity of the assessment. The existence of performance appraisal criteria can lead to motivation in employees to increase performance productivity so that the work given can also have an impact on the company. Therefore, this study aims to produce a web-based employee salary increase eligibility system using the Laravel framework with the PHP programming language. Tsukamoto fuzzy and Mamdani fuzzy methods can be used to make predictions. However, the comparison of the level of accuracy of these two methods is not known. So it is necessary to compare the accuracy of the method to find out which method has better accuracy for application to the employee salary increase eligibility system. The input variables involved in the calculation are self-development (PD), self-ability (KD), and personality (KB). The flow of the Tsukamoto and Mamdani fuzzy calculations includes a process of fuzzyfication, rule formation, the inference engine on Tsukamoto using the MIN implication function in obtaining the alpha-predicate value is used to calculate each z value, and defuzzification using the calculation of the average weight average. While the Mamdani fuzzy inference engine uses the MIN implication function, then determines the rule inference using the MAX method and defuzzification using the centroid calculation, and calculating the accuracy using the Mean Absolute Percentage Error (MAPE). The results of the calculation of the accuracy of the Tsukamoto fuzzy method are 86.22% and the Mamdani fuzzy 90.49%.

Keywords : Fuzzy, Laravel, Mamdani, MAPE, Tsukamoto