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SYSTEMATIC ALTERNATIVE FUZZY LOGIC EVALUATOR (SAFLE) FOR STUDENT PERFORMANCE EVALUATION

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ABSTRACT

Students' overall performance at school is essentially evaluated based on academic accomplishment. However, in high school or working environments, students must excel in other soft skills such as leadership, communication, and critical thinking. To evaluate criteria for student performance, for example, student behavior, which does not involve quantitative performance like academic scores, decision-making is critical. The assessment during the process of evaluation usually involves individuals with different opinions and thoughts. Therefore, the decision-making made based on human judgment may sometimes be time-consuming and unfair. Hence, a Systematic Alternative Fuzzy Logic Evaluator (SAFLE) is introduced to evaluate students' performance at school, particularly in identifying eligible students as the best student by implementing the fuzzy logic approach. The proposed evaluation also intends to simplify the evaluator's tasks due to time and fairness. The attribute measured includes the examination score, roles and responsibilities held in schools, and student's behaviour in school. The data is evaluated computationally using the Fuzzy Logic Toolbox in MATLAB. If-then rules are used as one way to identify the best student. The rules serve to ease the evaluator's decision-making by categorizing students into more flexible membership functions. The result obtained shows that the Fuzzy Logic Approach proposed can present an alternative systematic evaluation in selecting the best student to be awarded. The Fuzzy Logic approach can differentiate the score obtained and categorize students in the belongingness in the membership function.

Keywords: alternative evaluation, student performance, fuzzy logic

INTRODUCTION

Secondary school is a significant stage for students to demonstrate their academic and soft skills before enrolling in higher learning institutions. Given this, students' overall performance in secondary school should be assessed in every way includes academic and non-academic performance, because those with excellent academic background and soft skills can grow as a potential human resource contributing ideas and skills for their corporation. Therefore, the Best Student Award can be one of the initiatives introduced to recognize potential students who deliver excellence not only in academics but also in the ability to foster excellent soft skills such as leadership, discipline, teamwork, and communication (Tracy, Gran, Kanyan & Lajim, 2021). Amelia, Abdullah & Mulyadi (2019) also stated that student performance assessment

involves measuring abilities, competencies, and skills. However, ability, competency, and skills are fuzzy concepts and captured in fuzzy form (Amelia et al., 2019). The decision-making process to measure these abilities, competencies, and skills in the current approach comprising individuals' opinions and judgment are usually too time-consuming, unfair, and biased. On that account, evaluating student's academic performance using proper techniques is essential in ensuring a fair assessment of their qualities (Tarmudi, Sarahintu, and Lepit, 2015). Proper evaluation can help identify the strengths and weaknesses and provide opportunities for improvement and skills development (Guruprasad, Sridar, and Balasubramaniam, 2016).

Systematic Alternative Fuzzy Logic Evaluator (SAFLE), an alternative evaluation system based on the Fuzzy Logic Approach, was developed to identify the potential students eligible for the Best Student Award. The criteria considered for the evaluation are the academic performance, including the student examination score, roles, and responsibilities held by the students in school, including position held by the student in school, involvement in co-curricular and outdoor event competition, and lastly, student's behaviour. Students' behaviour refers to their responses towards the class's learning process, attendance, and disciplinary acts. MATLAB Fuzzy Logic Toolbox is used to demonstrate the evaluation process of student performance. The development of a Fuzzy Rule that utilizes if-then rules simplifies the evaluator's decision-making, primarily when more attributes are assessed.

The student's overall performance will be classified in the linguistic term, namely Poor, Average, Good, and Very Good, as shown in Table 1. The performance values will rank students and categorize them accordingly to the performance indicator specified. Figure 1 shows the features of the membership function in MATLAB Fuzzy Logic Toolbox.

Table 1. Output – Student Overall Performance

Linguistic Expression	Interval
Poor	[0 0 0.25]
Average	[0 0.25 0.5]
Good	[0.25 0.5 0.75]
Very Good	[0.5 0.75 1]

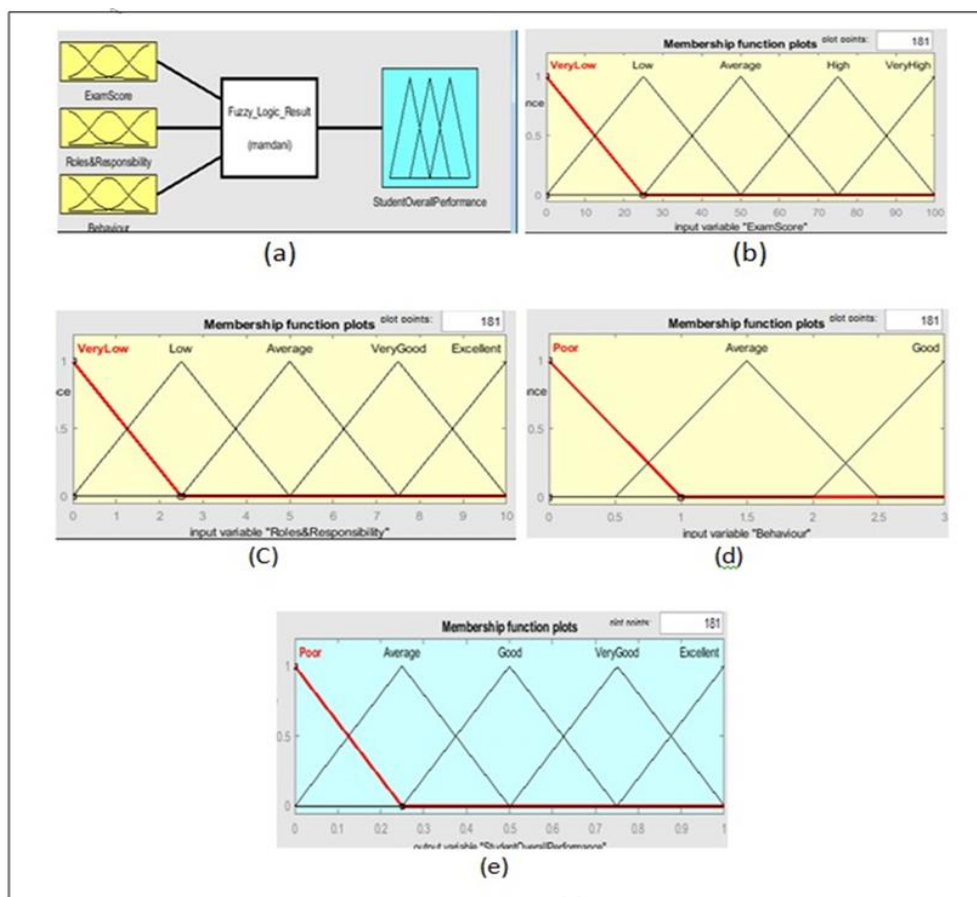


Figure 1: Features of Membership Function in MATLAB Fuzzy Logic Toolbox

- (a) Setting of Input and Output Parameter
- (b) Membership Function for Exam Score
- (c) Membership Function for Roles and Responsibility
- (d) Membership Function for Student's Behaviour Toward Learning
- (e) Membership Function for Student's Overall Performance

OBJECTIVE

The Systematic Alternative Fuzzy Logic Evaluator (SAFLE) aimed to provides a systematic measurement to assess student performance and intends to simplify the evaluator task in decision- making pertaining to time saving and unfair decisions.

NOVELTY

The proposed evaluation system assists in the decision-making problem involving uncertainty and vagueness in selecting the potential best student in the secondary school, thus minimizing

unfairness and biased results. The system also provides more flexible evaluations for students based on the lingual result assign to the student.

COMMERCIALIZATION

It is beneficial for usage in any institutions where appraisal of performance is required, for example schools, universities and organization.

CONCLUSION

Fuzzy Logic is a mathematical method based on a logic that can take imprecise input and imitate human logical thinking in the decision-making process. In this study, a Systematic Alternative Fuzzy Logic Evaluator was developed to measure the performance of secondary students utilized the fuzzy logic approach. Qualitative data, which cannot be measured qualitatively, were categorized using a linguistic expression: low, very low, average, good, and others. The proposed approach can minimize the uncertainty and vagueness in the decision-making process to identify the best student based on the criteria that are being evaluated. It can be applied in a wide range of areas, including education and industries.

REFERENCES

- Amelia, N., Abdullah, A. G., & Mulyadi, Y. (2019). Meta-analysis of student performance assessment using fuzzy logic. *Indonesian Journal of Science and Technology*, 4(1), 74-88.
- Guruprasad, M., Sridhar, R., & Balasubramanian, S. (2016). Fuzzy logic as a tool for evaluation of performance appraisal of faculty in higher education institutions. In *SHS web of conferences* (Vol. 26, p. 01121). EDP Sciences.
- Tarmudi, Z., Sarahintu, M., & Lepit, A. (2015). Evaluation of pre-diploma students using fuzzy approach. *Jurnal Intelek*, 10(1), 37-42.
- Ajol, T. A., Gran, S. S., Kanyan, A., & Lajim, S. F. (2021). An Enhanced Systematic Student Performance Evaluation Based on Fuzzy Logic Approach for Selection of Best Student Award. *Asian Journal of University Education (AJUE)*, 16(4), 10-20. <https://doi.org/10.24191/ajue.v16i4.11932>



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