

Fuzzy Based Student Performance Analysis

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Abstract— In this paper, we proposed a grading system for student semester marks based on fuzzy in MATLAB. A new approach is presented for easy way to evaluate the student performance using fuzzy. In this system, both internal and external marks need to be entered of individual student, based on this overall marks and grade will be displayed using fuzzy in MATLAB. This will make easy to calculate the total marks with specified grade. Based on fuzzy rules total marks with grade will displayed, fuzzy will automatically calculates the total marks with grade based on fuzzy rules which is comparatively easy and better than other systems.

Keywords — Fuzzy logic, student performance analysis, MATLAB.

I. INTRODUCTION

The student performance analysis is common in school, colleges, etc., Now a days not only marks given but also grade. Grade is commonly preferred for viva and all which is better as compared to the marks. Instructive markings are for the most part dependent on the composed articulations by an understudy in a specific test. There is part of chance in an examination more than one understudy gets the equivalent mark. Yet, on the off chance that an educator directs an individual viva, at that point they can truly discover one understudy is superior to other understudy with regard to a specific circumstance. Indeed, even now and again, more than one understudy gets the most extreme imprint apportioned for the test. In such case the quantity of understudies getting a similar imprint is high, where the information levels, aptitudes sets of two understudies are extremely extraordinary .In all this type of exams we have the performance of an student. It is no uncertainty that testing to dole out evaluations is one of the most normal types of instructive assessment. Regularly every instructor collects a lot of test scores for understudies to determine a grade. One of the significant variables to be considered is the evaluator's supposition on the learning dimension of the understudy, the introduction aptitude, time taken to display the right answer, with regards to subjects including estimations and formulae like science, viability of the techniques utilized to determine a specific outcome and the precision of the outcomes. Since these components will mirror the information dimension of the understudies and obviously demonstrate the ranges of abilities of a specific understudies, these components must be considered in the assessment. These variables are fuzzy in nature ,a fuzzy technique is expected to review them better. The objective of this paper is to manufacture an orderly model for a fuzzy instructive reviewing framework by including some increasingly fuzzy variables to tweak the exactness of the evaluation of an understudy and to propose a well ordered calculation to coordinate the PC innovation to do it naturally. Proposed a fuzzy instructive reviewing framework fuzzy which he built an enrolment capacities for the instructive evaluations. The different strategies for reviewing and strategy to positioning fuzzy rules are given. In our system student performance is analysed based on both marks and grade using fuzzy model which helps calculate automatically.

II. EXISTING SYSTEM

There are three different existing systems one is norm referenced systems which will plot a curve called as bell curve based on normal distribution from that curve student grade performance is analysed, the second one is criterion referenced system which is opposite to norm referenced system .In this system, no assumption is there fully criterion based whether student is pass or fail and third one is Hybrid system which is combination of both norm and criterion referenced systems.

III. PROPOSED SYSTEM

In the proposed, student performance analysis is based on fuzzy .Here, we need to enter the internal and external semester marks and calculate the total marks and grade too using fuzzy in MATLAB. This calculation is fully done through fuzzy because of rules in the fuzzy. In fuzzy, there are three modules mainly, number of inputs, rules and outputs based on rules it will generate the proper output .This is very helpful in all educational field to analyse the individual student performance.

IV. BLOCK DIAGRAM

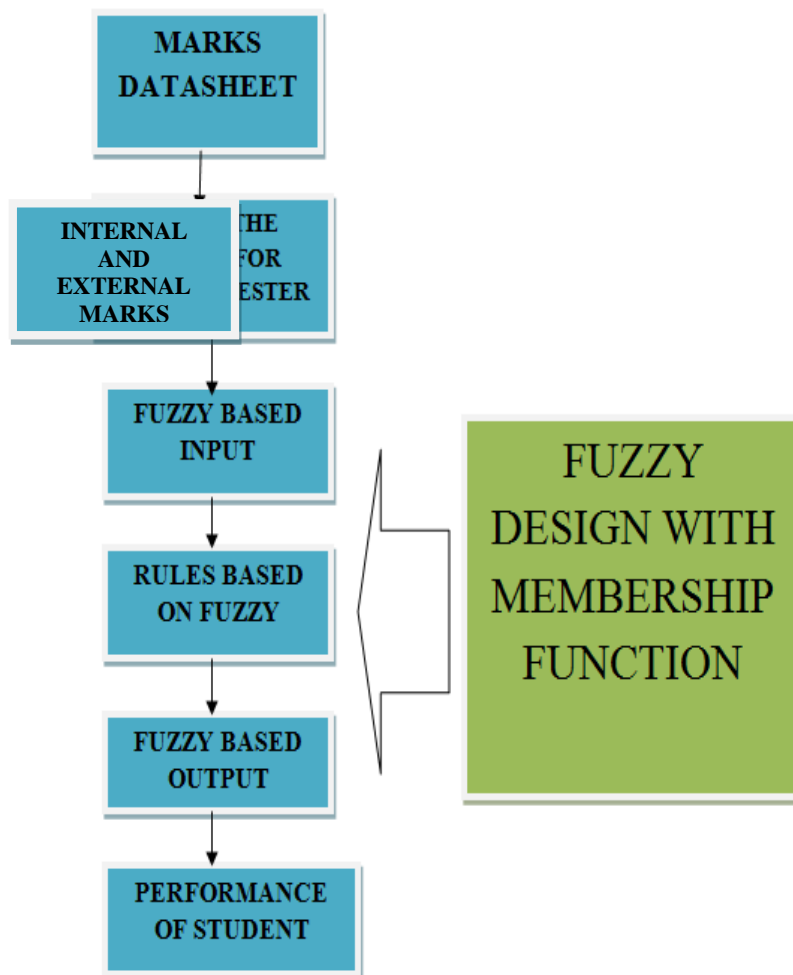


Fig. 1 Block diagram

V. FUZZY LOGIC METHODS

For generation of fuzzy code first find the inputs and number of outputs then, define the proper range for inputs and outputs and also choose the membership functions depends upon the number of inputs and outputs with specified range. Then, choose triangular membership function and write the function for it which is known as trimf function and this function is used for fuzzify the inputs. The most important steps to design a rules and also design a fuzzy relation matrix.

In our system, Input will be marks, for this situation the information will be signs of Internal and External Examination that is enter the internal and external marks of an student. Identify ruled which are pertinent of the given input. Find out the enrolment esteem for given input. Use Fuzzy organization (in this code max min structure has been utilized) to figure yield weight.

On comparing fuzzy yield and take max of all output. If fresh esteem isn't required this will output .Otherwise any defuzzification strategy can be utilized. The procedure is utilized in the code. Again for the Grading framework it is required to change over the total yield into a semantic Variable, as C,B,A,D,O and so on., with the grade that is student performance which consists of total marks with grade of an student.

VI. RESULT

First Class with Exemplary
 Student Internal marks is 25
 Student External marks is 75
 (out of 25 and 75)

The Crisp Marks for the student out of 100 should be= 95.1333

The relation Matrix for used Rule is given Below Where 0,1,2,3,4 represents Grade C,B,A,D,O

| | | | |
|---|---|---|---|
| 0 | 1 | 2 | 3 |
| 1 | 2 | 3 | 3 |
| 2 | 2 | 3 | 4 |
| 2 | 3 | 3 | 4 |

Grade obtained by the student is=O

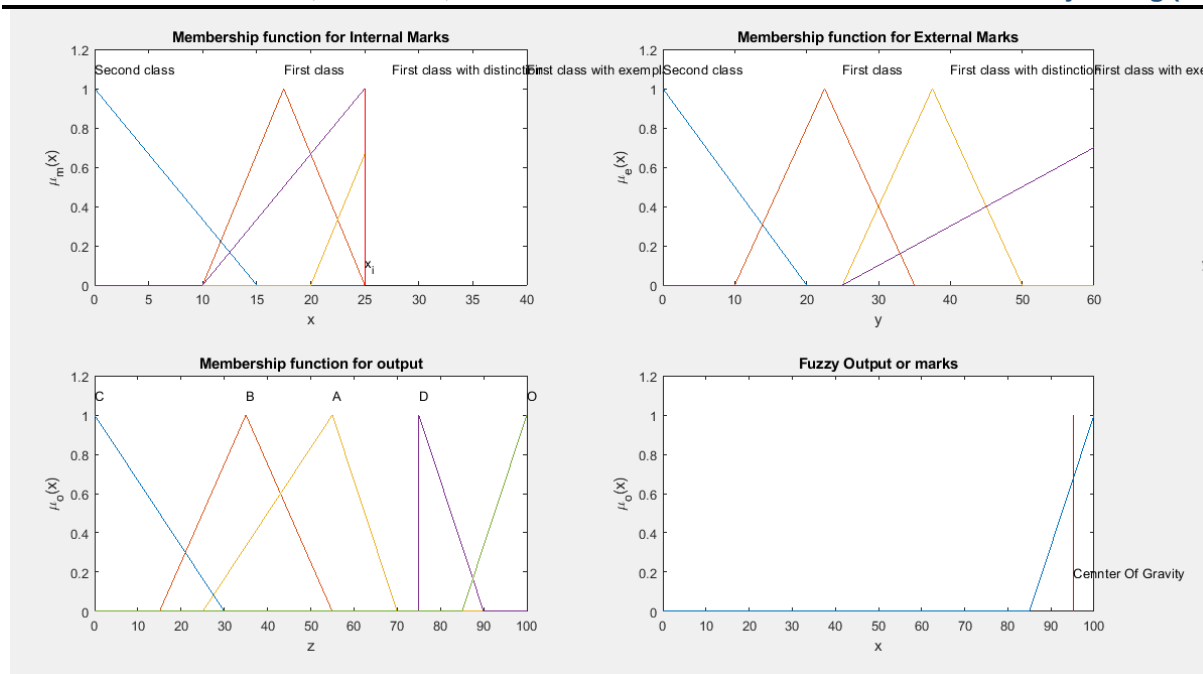


Fig. 2 Fuzzy logic based output

VII. CONCLUSION

The student performance analysis using fuzzy makes very easy to use and it is user friendly too. The calculation for total marks and grading it does automatically because of fuzzy logic which leads to reduce the work from educational department .Hence, The student performance analysis is done based on fuzzy logic which enhance the accuracy as compared with other existing systems.

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