

# Student's Performance Evaluation And Intelligent Tutoring System

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**ABSTRACT**— Most of the educational institutions facing the problem how the students are performed in their Examinations. And also the staff couldn't able to analyze each student's capacity based on their Examinations. Student Evaluation is the process of determining the performance levels of individual students in relation to Educational learning objectives. In this paper the authors mainly focus on the prediction of Student's Academic Performance by using Fuzzy Logic Approach. The Fuzzy Logic is the technique which can be used for solving the problems in many fields. It is very useful when it comes to the problem where we need to decide and find the values ranging between 0 and 1 or any other specific range. The Internal Assessment Marks should be taken as a parameter for the evaluation process. And finally it gives the possible score with the corresponding CGPA value based on their performance. Additionally, the Intelligent Tutoring System can be added to this system for the chat purpose. It provides the immediate and customized response to the students corresponding to their queries. The purpose of the paper is to make institution give full consideration of the grades of students to define their performance.

**Keywords**—Fuzzy Logic, Student, Intelligent Tutoring System

## I. INTRODUCTION

The main aim of Educational Institutions is to provide student with the evaluation reports regarding their examinations as best as possible with minimum errors. Student's performance evaluation includes analysis of skills and ability which are characterized by using linguistic terms instead of numerical values. In this paper the evaluation of student's performance can be implemented by using the Fuzzy Logic Approach. This approach will have no restrictions of number of parameters and kind of parameters. The Fuzzy logic can be developed and implemented depending on the performance in different subjects chosen by a student and also the performance in the other related parameters. On the basis of Fuzzy logic approach the evaluation of student's performance can be done on the basis of fuzzy sets and fuzzy rules that helps the students to get a clear view of their End Semester Examination results. In recent years, there is a growing need for computer technology to be used in an educational systems. In this paper, we implementing the Intelligent Tutoring System (ITS) that provides the personalized instruction and feedback to the users without a human teacher. When ITS are used in this system, the system is not only used by students, but by teachers as well.

## II. LITERATURE REVIEW

- I. In paper [2] the most purpose of this study is that the presentation skills evaluation of pre-service teachers via fuzzy logic. There are two totally different groups during this study. The first one consists of fourteen instructors serving inside the Computer Education and Information Technology (CEIT) Department of Firat University (FU). This group has provided skilled view in ranking the importance of the matters within the presentation analysis scale (PES) and in forming the rule base that sets ground for the operation of fuzzy logic mechanism. The second group consists of forty one juniors having the operating Systems and Applications Course among the CEIT Department of FU. The scholars during this group build a presentation related to the units of this course, PES area unit applied on them and also the study is conducted by the information obtained from this scale.
- II. In paper [5] the authors has propose a new fuzzy logic based performance evaluation technique .During this technique, they consider three parameters attendance, internal marks and external marks that are considered to evaluate students in an IT related Under-graduate course.
- III. In paper [8] the authors focuses on the fuzzy based approach for evaluation of the student numeric grading without entailing the human judgmental.
- IV. In paper [11] the authors proposes a new performance evaluation technique using fuzzy logic

systems. Student performance of laboratory in marmara university Technical Education faculty was applied with fuzzy logic.

### III. PROPOSED APPROACH

The following diagram shows the proposed approach that basically showing the three modules on how the system has been processed and evaluated by applying the Fuzzy logic technique and finally obtaining the results. In this module of the proposed approach, we are trying to figure out which is the best suitable future perspective for the student on the basis of their Internal Examinations with the help of Fuzzy Logic Approach. This helps students to predict their End Semester Examination results for improving their knowledge in future. After finishing the evaluation it gives the predicted result values for the student's final semester examinations by using the fuzzy logic technique. Additionally, the Intelligent Tutoring System can be very useful to the users for get an immediate response when they ask some queries. The Intelligent Tutoring System is automatically adapted at run time to the student's individual growth.

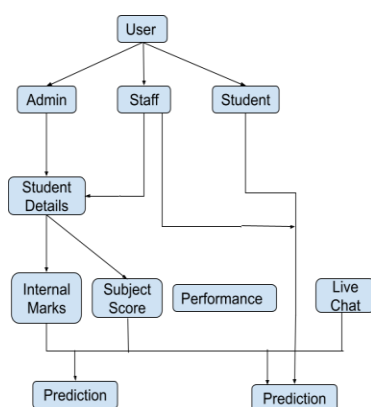


Figure 1 Proposed Diagram

### IV. IMPLEMENTATION

The implementation of proposed approach has three main modules that is

- Admin
- Staff and
- Student

According to the modules described above there are different parameters that can be included as follows:

For Admin module

V. Registration

VI. Add Subjects

VII. View Details

For Staff module

VIII. Mark Details

IX. View Details

X. Chat

For Student module

XI. View Details

XII. Chat

XIII. Test

Since all the modules have been implemented in the similar way the first module implementation has been shown below. Figure 4.1 shows the modules that are included in the login page. The registration process can be explained in the figure 4.2 shows the attributes that can be need for the new user registration.



Figure 2 Login page



Figure 3 Registration page

In this phase the admin can register to the new user and also monitoring the staff and student module. The Admin can also entering the mark details of the student.

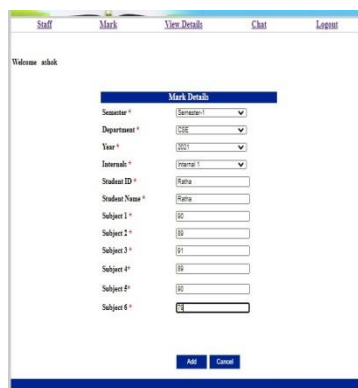


Figure 4 Entering Mark Details

The details of the student can be entered in the Mark Details module. Figure 4.3 can be shows the attributes that are needed for entering the details by the staff and the admin.

### V. RESULT ANALYSIS

The below figure 5.1 illustrates that how the grades are assigned for the students based on their Internal Assessments marks.

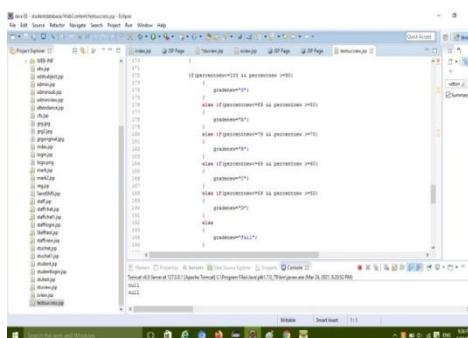


Figure 5. Program for calculating grades

If the student get marks greater than the fixed value, then it produces the corresponding grade for the student as their result. If the student get marks lower than the fixed one, then they get fail as their result.

The Student test value results are analyzed by using the fixed grade system.

The above figure describes the obtained result after evaluating the students performance based on their Internal Assessment marks. In this domain of study on the basis of student's academic performance, the student best and possible results can be obtained. The different parameters are employed in this paper to classify the different linguistic values to define the range of the membership function. It also calculating the marks into the percentage format and it can also be gives the Grade to us. Based on their performance in every Internal Assessment of the individual student can be included in the Mark Details module. Finally it provides the possible score for their end semester examination results.

In the figure 5.3, it defines how the chat module can be processed with the help of intelligent Tutoring System. When ITS are used in this system, the system is not only used by students, but by teachers as well. It can also be used to enhance the communication between the student and the staff.

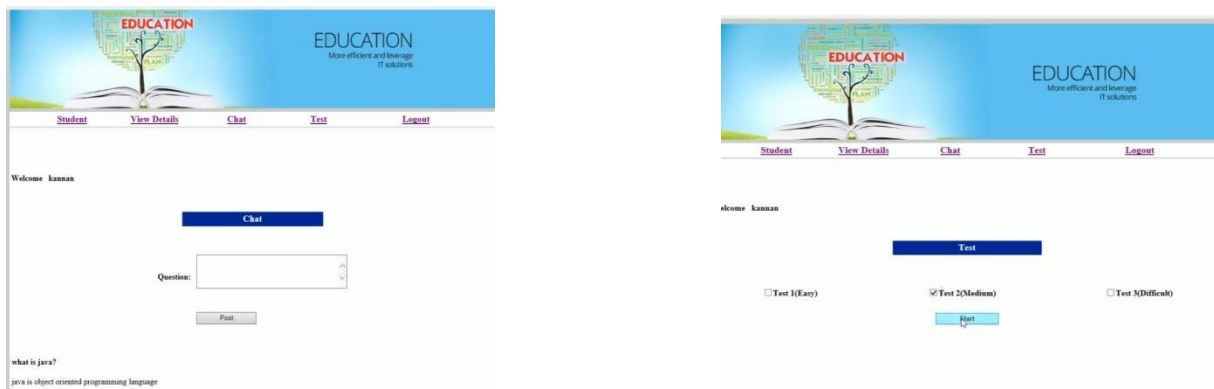


Figure 5.3: Using Intelligent Tutoring System for chat purpose

## VI. CONCLUSION

In this domain of the basis of student's academic performance, the student best and possible results can be obtained. After completing the evaluation it gives the predicted result values and the CGPA value for the final semester examinations by using the fuzzy logic. The fuzzy logic can be used for the evaluation of different fields on the basis of different parameters which are classified into different linguistic variables to define the range of the membership function. Finally it provides the possible score for their end semester examination results.

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