



## Solution for Present Examination System Using Classification Techniques

**P. Veeramuthu**

Research Scholar

Department of Computer Science

Nehru Memorial College, Tamilnadu, India

**Dr. R. Periyasamy**

Associate Professor

Department of Computer Science

Nehru Memorial College, Tamilnadu, India

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**Abstract**— Educational data mining means to extract the hidden knowledge from large repositories of data with the use of technique and tools. Educational data mining develops new methods to discover knowledge from educational database and used for decision making in educational system. The various techniques of data mining like classification. Clustering can be applied to bring out hidden knowledge from the educational data. Examinations help the parents to know the progress of their wards from time to time. Examinations act as incentives and stimulate the pupils to put in hard work in order to achieve success. Examinations help in measuring the efficiency of the lecturers and the colleges. Examinations provide uniformity of standard. Examinations help the students to pursue higher courses and provide ample opportunities to land into a dream job.

**Keywords**— Higher Education system, Educational Data mining, Classification and Examination system.

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### I. INTRODUCTION

The examination and study of student's academic performance is not a new exercise but computer based learning environment increases more interest towards student's analysis. The concepts and techniques of data mining can be implemented in education to predict the academic performance of student. On the basis of these kind of predictions the academic performance of student can be improved. EDM is applied to large amount of data accumulated by surveys and various classification techniques are implemented for better performance. The prediction of student's performance has become one of most important needs in order to improve the quality of performance. There is a need of data mining in educational system for the students as well as academics responsible. Educational data mining is an arising regulation that promote the new techniques for extracting the new data that come from educational settings and by using those techniques, a better prediction can be done for student's behavior, academic performance, subject interest

### II. RELATED WORK

All colleges are affiliated to some university. Whether the existing examination system serves our present day needs or whether it requires to be changed, are questions which are uppermost today in the minds of not only those who are responsible for improvement of education in our country but also those whose Student are studying in educational institutions. Examinations may be classified on the basis of type of questions i.e. Essay type, short answer type and objective type.

[1]Essay test is a test containing questions requiring the student to respond in writing. Essay tests emphasize recall rather than recognition of the correct alternative. Essay tests may require relatively brief responses or extended responses.

An essay type question may use the following eleven words, signifying the simple to higher mental processes – what, who, when, which and where; list, outline, describe, contrast, compare, explain, discuss, develop, summarize and evaluate.

An essay questions – analysis, application of laws, principles, rules to new situations; cause or effect, classification, comparison of two ideas or things in general, comparison of two things on a single basis, criticism as to the adequacy, correctness or relevance of a statement, decisions for and against, explanation of the use or exact meaning of some word, phrase or statement; evaluation recall-basis given.

[2]In a simple language it may be stated that a short answer type test is between an essay type test and an objective test. Short answer items require the examinee to respond to the item with a word, short phrase, number or a symbol.

The short answer test is an objective test in which each item is in the form of a direct question, a stimulus word or phrase, a specific direction, a specific problem or an incomplete statement or question. The response must be supplied by the examinee rather than merely being identified from a list of suggested answers supplied by the teacher.

[3]The traditional system of examination or the essay type of examination has come under heavy fire. Students denounce it because of its heavy strain, the parents criticize it because of its injurious effect on the physical and mental health of the student, the teachers complain because of its harmful effect on college work. To mitigate some of the evils of the essay type examinations, objective tests seem to be very useful. Objective tests are of a large variety. However,

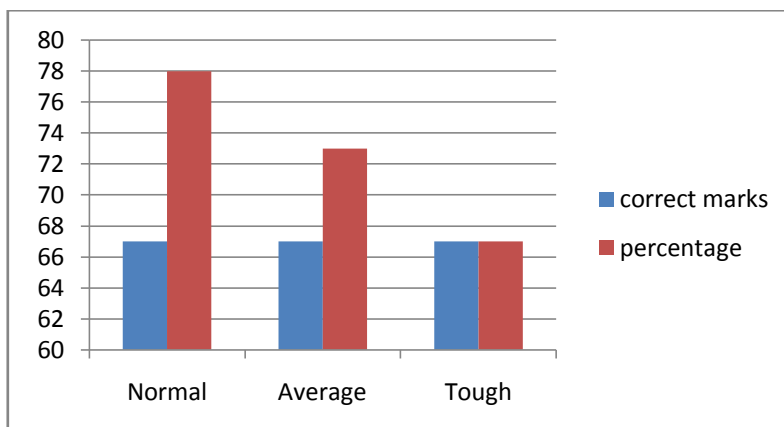
only seven or eight types of objective tests are commonly used. An objective test as one that can be provided with a simple predetermined test of correct answers so that objective opinion or judgment in the scoring procedure is eliminated.

Evaluation is a comprehensive and continuous process which covers every aspect of an individual's achievement in the educative process. It is an integral part of education in which students and Lecturer are partners. It signifies a wider process of judging students progress in various aspects. Evaluation is a qualitative judgment of an individual's performance. Evaluation includes academic and non-academic subjects. The student papers are evaluated by three different categories of lecturers

**Evaluation Score Table**

Stu. Name	Normal	Average	Tough
stu1	92	96	85
stu2	85	78	74
stu3	88	83	78
stu4	90	78	75
stu5	72	80	76
stu6	75	68	66
stu7	63	70	68
stu8	65	60	58
stu9	73	65	60
stu10	78	72	68
stu11	81	73	65
stu12	68	60	55
stu13	74	65	60
stu14	76	68	61
stu15	85	80	72
stu16	92	85	78
stu17	94	88	85
stu18	78	65	61
stu19	64	60	50
stu20	61	60	50
<b>Total</b>	<b>1554</b>	<b>1454</b>	<b>1345</b>
<b>Percentage</b>	<b>78</b>	<b>73</b>	<b>67</b>

Measurement is a procedure for assigning numbers to specified attributes or characteristics of persons in a manner that maintains the real world relationship among persons with regard to what is being measured. Measurement is a quantitative determination of an individual's performance, which helps in evaluation. Assessment is the process by which one attempts to measure the quality of learning and teaching using various assessment techniques such as assignments, projects and seminars.



### III. DATA COLLECTION AND PRE-PROCESSING

Data pre-processing is a data mining technique that involves transforming raw data into an understandable format. In Our Research paper, data is acquired from "Department Of Computer Science" of 'Nehru Memorial College, Puthanampatti affiliated with BharathidasanUniversity, Trichy'. On the basis of collected data, some attributes are considered to predict student's performance in Final Examination.

**Classification:** Classification is an analytical task where the classifier is constructed to predict the categorical labels as "Advanced", "Medium" and "Slow". We have divided classification of aforementioned educational data into two steps.

The first step, the classifier describes the predefined set of data classes. This is the training phase where a student tuple S is represented as an attribute vector  $S = (x_1, x_2, x_3, x_4)$  where  $x_1, x_2, x_3, x_4$  are the values of attributes Attendance, Tutorial and Class Test respectively. The corresponding class label (Advanced, Medium or Slow) is provided to each training tuple. We have obtained this label is by the association rules mining technique mentioned in the previous section of the paper.

IF student = advanced AND attendance = good AND tutorial = good AND class test = average THEN final_exam_performance = Medium	IF student = slow AND attendance = poor AND tutorial = average AND class test = average THEN final_exam_performance = Slow
IF student = medium AND attendance = very good AND tutorial = good AND class test = poor THEN final_exam_performance = Medium	IF student = medium AND Attendance = poor AND tutorial = average AND class test = poor THEN final_exam_performance = Medium
IF student = slow AND attendance = good AND tutorial = poor AND class test = average THEN final_exam_performance = Slow	IF student = medium AND attendance = good AND tutorial = poor AND class test = average THEN final_exam_performance = Medium
IF student = medium AND attendance = very good AND tutorial = good AND class test = average THEN final_exam_performance = Medium	IF student = advanced AND attendance = very good AND tutorial = average AND class test = average THEN final_exam_performance = Advance
IF student = slow AND attendance = poor AND tutorial = average AND class test = average THEN final_exam_performance = Medium	IF student = advanced AND attendance = good AND tutorial = good AND class test = poor THEN final_exam_performance = Medium
IF student =medium AND attendance = very good AND tutorial = good AND class test = average THEN final_exam_performance = Medium	IF student = medium AND attendance = good AND tutorial = good AND class test = poor THEN final_exam_performance = Medium
IF student = advanced AND attendance = very good AND tutorial = good AND class test = good THEN final_exam_performance = Advanced	IF student = slow AND attendance = good AND tutorial = good AND class test = poor THEN final_exam_performance = Slow
IF student = medium AND attendance = very good AND tutorial = average AND class test = average THEN final_exam_performance = Medium	IF student = medium AND attendance = very good AND tutorial = good AND class test = good THEN final_exam_performance = Advanced
IF student = medium AND attendance = good AND tutorial = average AND class test = poor THEN final_exam_performance = Slow	IF student = slow AND attendance = poor AND tutorial = poor AND class test = poor THEN final_exam_performance = Slow
IF student = medium AND attendance = good AND tutorial = poor AND class test = average THEN final_exam_performance = Medium	IF student = slow AND attendance = good AND tutorial = average AND class test = poor THEN final_exam_performance = Slow

The classification rules mentioned in Table predict student’s performance in their final examination. The second step of classification process estimates the predictive accuracy of the classifier. If we were to use the training set to measure the accuracy of the classifier, this estimate would likely be optimistic, because the classifier tends to over fit the data. Therefore, a test set is used made up of test tuples and their associated class labels. These tuples are independent of training tuples. The associated class label of each test tuple is compared with the trained classifier’s class prediction for that tuple. This comparison has proved that the accuracy of the classification process we followed is acceptable and can be used for further data tuples for which the class label (Advanced, Medium or Slow) is not known i.e. it can be used for predicting the performance of various students other than the students listed in training set of classification. The outcome of the classification process is the set of classification rules which predict the future performance of any student in the institute. The instructors in the institute can take the remedial action based on this prediction. They can provide the special coaching in advance, using various ICT (Information and Communication Technologies) methods to enhance the student’s performance in their final examination.

#### IV. DRAWBACKS OF THE PRESENT EXAMINATION SYSTEM

- Lack of definite aim.
- Element of chance.
- Lowering of educational standard.
- Lowering of moral standard.
- Ignoring qualities of character like originality, initiative, truthfulness, honesty, sociability.
- Element of subjectivity.
- Heavy mental strain.
- Developing frustration due to failures.
- Certificate inflation.

## V. SUGGESTIONS

Significant differences were there in the attitudes of lecturers and students towards present day examination system. Hence, it was advised that certain reforms had to be done. It was suggested that examination should test the real knowledge of students, by giving more application type questions. It was inferred from the study that question papers do not contain questions from all areas. Hence, it was advised that paper setters should take care and due importance should be given to each area.

Present day examination system do not test the creativity of the pupils. To rectify this, question papers should be in such a way that they develop creative ability in students. Lecturers give much importance in completing the syllabus rather than conceptual clarity. Hence, orientation should be given to lecturers to make them understand that conceptual clarity is more important. Element of subjectivity and repeated questions over the years in the examinations should be reduced. Essay type examinations should be minimized by introducing objective type tests and also by changing the type of questions. Written examinations help in knowing the abilities of learners. So, there is a need for some kind of monitoring of learning during the course of instruction.

Examination steps are a very important factor influencing examination performance. Students should be motivated to learn their lessons daily, so that there is less tension during examination time. Utmost care must be taken that question papers contain questions from all areas. In examinations, generally it is observed that if open choice is given, students prefer to write answers which take less time. So it is advised to frame all questions of equal difficulty level and also taking equal time. It is better to give internal choice questions rather than open choice questions.

## VI. FUTURE STRATEGY

Another important step in examination reform is improving its quality. The UGC Higher Education has taken various measures in the past such as training of paper-setters, doing away with overall options and introducing internal options in question papers so as to eliminate selective study by pupils, introducing short answer questions to have a wide coverage of syllabus, providing marking schemes to the examiners and the standardization of scores etc. Several other measures are in the offing. Greater emphasis is being laid on testing application of knowledge and understanding. Question banks with suitable test items are being set up in different subjects. Training of paper- setters and examiners will be further strengthened. In certain subjects, continuous evaluation through internal assessment has also been provided.

These and many other changes, Which have been accepted at the national level for reforming the existing examination system will, it is hoped, help in bringing about qualitative improvement in education and removing, to a considerable extent, the inadequacies and deficiencies from which the present system suffers. Under the new pattern, the examination has to be a part of the educational process. It has to serve as a reliable too of measurement. And what is more important is the feed-back. The results have to be utilized to provide remedial teaching for the weak students; for the bright and gifted, more challenging programs have to be provided. The examinations should also be utilized by teachers to improve their teaching methods. it is only then that examinations will serve their real purpose.

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