Automated Question Paper Generating System
Using Soft Computing Technique

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Abstract—Examination process is an important activity of an educational institute in testing the performance of a student. Generating an effective question paper is a task of great importance. Traditional methodology of generating question paper is manual in which professors need a lot of time and energy in framing a question paper. Framing of a question paper requires multiple parameters to be considered such as difficulty level, numerical and theoretical content of the paper, weightage of questions according to marks etc. Although these parameters are matter of great importance while deciding the format of paper manually. Evolutionary changes in computer technology has led to a change from manual to an automated system. In this paper an automated question paper generating system has been proposed which stores questions based on a particular course and generates a question paper based on the syllabus. Automated question paper generating system is software which can be used at various educational institutes wherein a huge database of questions would be needed from which a question paper could be generated with an ease. It mostly deals with collection, storing, sorting and administration of large number of questions. The system includes several modules like login module, administration module and professor module. Automated question paper generating system can be designed using algorithms such as apriori algorithm, fuzzy logic, genetic algorithm and shuffling algorithm and technique as utility based agent and backtracking test method. Automated question paper generating system will enable college authorities to automatically generate question paper. This system will work on methods of permutations and computations.

Keywords—Genetic algorithm, Shuffling algorithm, permutation, computation, backtracking method

I. INTRODUCTION

Examination process is an important activity of an educational institute in testing the performance of a student. Generating an effective question paper is a task of great importance. Traditional methodology of generating question paper is manual in which professors need a lot of time and energy in framing a question paper. Framing of a question paper requires multiple parameters to be considered such as difficulty level, numerical and theoretical content of the paper, weightage of questions according to marks etc. Although these parameters are matter of great importance while deciding the format of paper manually. Evolutionary changes in computer technology has led to a change from manual to an automated system. In this paper an automated question paper generating system has been proposed which stores questions based on a particular course and generates a question paper based on the syllabus. Automated question paper generating system is software which can be used at various educational institutes wherein a huge database of questions would be needed from which a question paper could be generated with an ease. It mostly deals with collection, storing, sorting and administration of large number of questions. The system includes several modules like login module, administration module and professor module. Automated question paper generating system can be designed using algorithms such as apriori algorithm, fuzzy logic, genetic algorithm and shuffling algorithm and technique as utility based agent and backtracking test method. Automated question paper generating system will enable college authorities to automatically generate question paper. This system will work on methods of permutations and computations.

II. PROBLEM DEFINITION

Question paper generating system consist of several phases such as collection of data, classification, difficulty level etc. In the first phase all the questions are needed to be collected from the related expertise. All the gathered questions are to be stored and to store the question a database is to be designed first. Secondly all the gathered questions are needed to be classified as per the marks and at the last a paper needs to be generated depending upon the difficulty level without any repetitions or duplications. To avoid the repetition and duplication of questions the method of permutation and computation will be used.

III. RELATED WORK

Traditional method of generating a question paper have a few shortcomings. It was a paper based system in which the paper setter has to refer to all the previous question papers and set paper accordingly which was time consuming. Existing question paper generating system makes uses of various techniques such as utility based agent, genetic algorithm, shuffling algorithm, randomization algorithm, backtracking, intelligent algorithm etc.

A. Techniques and Methodologies
1. Shuffling algorithm only focuses on selecting the paper randomly without repetition and duplication and does not include the difficulty and the level of questions. The type of question being selected also does not vary.

2. Utility based agent system only focuses on a single agent.

3. Backtracking test method has high success rate of paper generation.

4. Randomization method also has various advantages such as test paper generation method is intuitive and it has a simple programming.

IV. PROPOSED WORK

Automated question paper generating system will enable college authorities to automatically generate question papers out of existing question bank in the database. The system will have capability to process different unique sets of papers automatically. The question bank can be arranged according to the subject, syllabus, semester and weightage. The paper generator is the software for setting examination question paper. The software performs all tasks related to paper setting, starting from preparing question bank to printing paper. The software will empower the college with a powerful tool to generate question papers in a very short time span. The authorities have the flexibility to generate class tests, unit tests etc.

V. WORKING

Fig. 1 shows the working of Question paper generator.

Question paper generating system is sub-divided into following modules

1. Collection of questions from experts / teachers.