

# Automated Question Paper Generating System Using Soft Computing Technique

Ms Poonam V. Bobade

*Department of Computer Science & Engineering  
Prof. Ram Meghe Institute of Technology & Research,  
Badnera, Amravati, Maharashtra, India.  
bobade.poonam@gmail.com*

**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 and techniques*

**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*

1.1 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.

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

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

1.4 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**

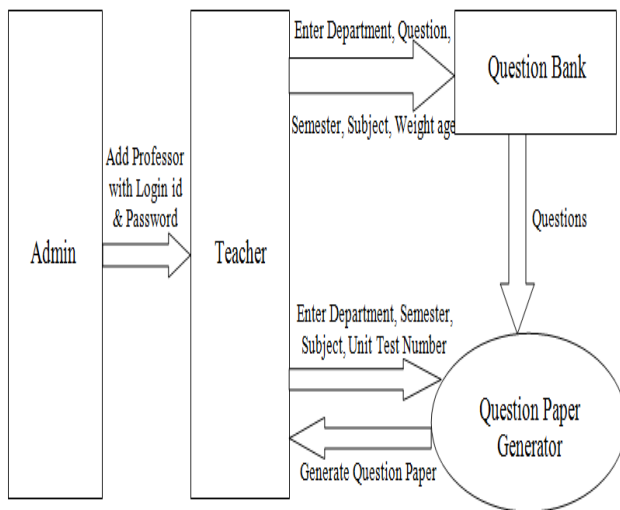


Fig. 1 Working of Question Paper Generator

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.

2. Classification of questions as per marks, difficulty levels such as hard, medium and easy levels.
3. Admin will add a professor by providing a login id and password.
4. The Professor after logged in will enter the department, semester, subject and weightage.
5. Algorithms to be applied are apriori algorithm, fuzzy logic and shuffling algorithm.
6. To avoid repetition and duplication method of permutation and computation will be used.
7. Finally question paper will get generated as an output.

**VI. CONCLUSIONS**

The purpose of this paper is to design an automated question paper generating system using various methodologies and to apply permutations and computations to generate the exact required result. This method of permutation and computation produces an unduplicated set of exam question paper.

**REFERENCES**

1. CHEN Xiumin, WANG Dengcai, ZHU Meining and YANG Yanping, *Research on Intelligent Test Paper Generation Baseon Improved Genetic Algorithm*, The 6th International Conference on Computer Science & Education (ICCSE 2011) August 3-5, 2011. SuperStar Virgo, Singapore.
2. SUN Chenxia LIU Bo JIN Zhiqiang WANG Chao, *An Adaptive Algorithm for Generating Question Paper with Multi-Factors*, 4th International Conference on Computer Science & Education, 2009 IEEE.
3. Ms. Deepshree S. Vibhandik, Prof. Mrs. Rucha C. Samant, "An Overview of Automatic Question Generation Systems", International Journal of Science Engineering and Technology Research (IJSETR), Volume 3, Issue 10, October 2014.
4. Rasika Dhondibhau Dhavale<sup>1</sup>, Dr. M.Z. Shaikh, "Automatic Test Paper Generator with Shuffling Algorithm", International Journal of Innovative Research in Computer and Communication Engineering Vol. 4, Issue 2, February 2016.
5. Aishwarya Chavan, Divya Karekar, Mojitha Mohandas, Rasika Manjarekar, "Automated Question Paper Generator System using Apriori Algorithm and Fuzzy Logic", International Journal for Innovative Research in Science & Technology, Volume 2, Issue 11, April 2016, ISSN (online): 2349-6010.
6. Dimple V. Paul Shankar B. Naik Priyanka Rane Jyoti D. Pawar, "Use of an Evolutionary Approach for Question Paper Template Generation", 978-0-7695-4759-6/12 \$26.00, 2012 IEEE, DOI 10.1109/T4E.2012.24.
7. Suraj Kamyia Madhuri Sachdeva Navdeep Dhaliwal Sonit Singh, "Fuzzy Logic Based Intelligent Question Paper Generator", 978-1-4799-2572-8/14/ 2014 IEEE.