

# Automatic Multiple Choice Question Paper Generator

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**Abstract** – This is a very complex problematic era due to the growth in the field of computer science and demand we are facing today. Hence examinations have a vital role in analyzing student’s performance. And that is why it is important to have a smart development question model for growth of students as well as to test their learning. Multiple Choice Questions play an important role in creating an exam for any entrance test like JEE, IBPS, UPSC, BPSC and many other exams conducted in India. Many modern methods of question paper generators have come into existence. Now a days instructors are facing difficulties during data entry. Instead of data entry directly to a software, we use excel or CSV type to upload it in an indirect way. So that a large amount of questions are uploaded quickly by different departments. We are also using an enhanced algorithm for selecting different levels of questions during generating multiple choice questions. We also take care of security concerns in developing the proposed system. Automatic question generation is part of [1] Natural Language Processing (NLP). It is an area of research where many researchers have presented their work and is still an area under research to achieve higher accuracy. Many researchers have worked in the area of automatic question generation through NLP, and numerous techniques and models have been developed to generate the different types of questions automatically. Work has been done in many languages.

**Keywords** – Question Paper Generation, NLP (Natural Language Processing), CSV, Enhanced Algorithm, Security etc.

## I. INTRODUCTION

Question paper generator is one of the unique software systems which is designed for those institutions where preparation of exams takes place. It helps to generate frequent questions from large data sets. Various institutions such as medical, engineering, banking and railways exams preparation coaching centers mostly use this software.

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[1] Natural Language Processing

a. (NLP) is used for preparing question papers on the basis of level. You can select easy, medium and difficult questions. You can also customize the question selection of an automatic question paper generator. [2] Bloom Taxonomy concept is used for preparing the question paper in proper format. This concept is used to generate automatic question papers in various ways in the hierarchical or level format. The advantages of generating questions based on [2] Bloom’s taxonomy enable to generate the questions that help to access learning ability of the student. The automatic question paper generator aims to provide fast operations, data storage and high security for all its tasks. Level of Bloom Taxonomy are as follows-

1. Remembering
2. Understanding
3. Applying

4. Analyzing
5. Evaluating
6. Creating

Table -I: Question paper Generator vs Automatic Question Paper Generator

Question Paper Generator	Automatic Question Paper Generator
Data entry	Import files directly

Use normal algorithm	Use enhanced AI algorithm
No Security	Security is concerned
Only customization	Automation and customization is assured

## II. LITERATURE SURVEY

### 1. Existing Question Paper Generator

This existing system is used for generation of question papers which requires human labour/manpower for entry of data to be fed into the system where question papers are taken from the faculty staff. Question paper generation takes place in two steps having more security concerns. It uses [4] randomization technique in which repeated questions can be written two times.

## 2. Limitation of question paper generation.

It is two step process where there is security issues with this system. It uses normal algorithm for generation of PDF or other types of format and files. It also leads to extra cost issues due to increase in manpower for data entry.

The paper on automatic question paper generator uses lightweight J2EE tools based on B/S architecture to design auto generated question paper. Automatic question paper generator saves extra cost because there is no need of data entry. If the faculty or instructor create question paper in XLS.

,CSV, and doc format then it can be imported by our system. Our system is divided into various modules such as admin, instructor, and learner. Admin is one who has ability to manipulate entire system. Instructor is faculty member who can upload paper or question bank as input which is fed to the system. Learner can practice the paper on the basis of the question paper generated by instructor. Adding [2] bloom's taxonomy to implement automatic question paper generator makes the system more valuable and advance system. Automatic question paper generator system consists of 4 tables for storing large data sets of questions and users. First table is for admins information and credentials and second table is used for registration details of instructor's data sets and third table is used for keeping question bank where [2] bloom taxonomy is used to represent it in the form of integer. We use spell checker algorithm for detection of algorithm by using the concept of [3] Lvenshtein distance. Algorithm for [3] Lvenshtein distance by using following details:

Table II Algorithm of Lvenshtein used in system

Steps	Description
1	Set n to be the length of s. Set m to be the length of t. If n = 0, return m and exit. If m = 0, return n and exit. Construct a matrix containing 0..m rows and 0..n columns.
2	Initialize the first row to 0..n. Initialize the first column to 0..m.
3	Examine each character of s (i from 1 to n).
4	Examine each character of t (j from 1 to m).
5	If s[i] equals t[j], the cost is 0. If s[i] doesn't equal t[j], the cost is 1.
6	Set cell d[i,j] of the matrix equal to the minimum of: a. The cell immediately above plus 1: d[i-1,j] + 1. b. The cell immediately to the left plus 1: d[i,j-1] + 1. c. The cell diagonally above and to the left plus the cost: d[i-1,j-1] + cost.
7	After the iteration steps (3, 4, 5, 6) are complete, the distance is found in cell d[n,m].

## III. PROPOSED SYSTEM

To generate question paper, our system is divided into 3 phases:-

Creation of question bank by Instructor

Uploading of files

Detection of spelling mistakes

Random selection of questions and convert it into files.

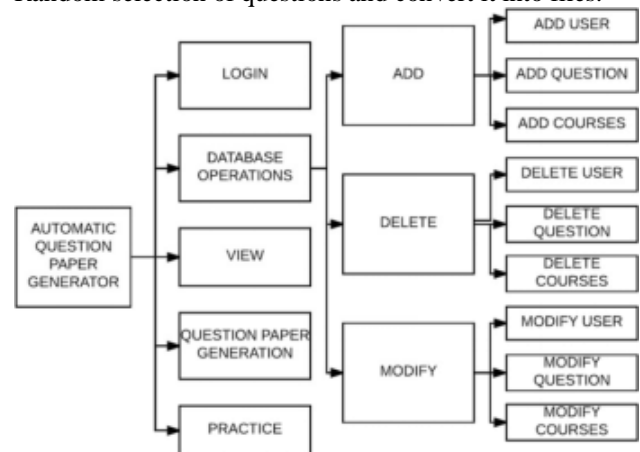


Fig.1. View module of system.

### 1. Working of the system

- Admin has right to manipulate the marking scheme, instructor as well as learner data sets.
- Admin has also right to delete question paper generated so far.
- The system has 3 different types of user :- Admin, Instructor, Learner
- While Learner has special properties like degree, pointer attempts corrections reported and level defined in the system like beginner, expert).
- Each course has its special id and names. each course added in the system's database has at least one question of its own kind.
- Questions are stored with the properties such as unique serial number, question statement, answer, four options with different difficulty level etc.
- Each questions belongs to particular option only.
- A learner can learn as many courses as s(he) want

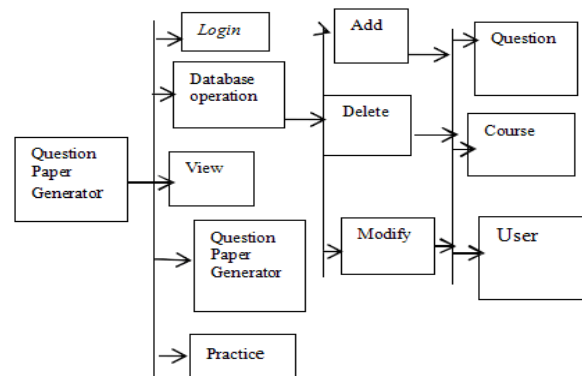


Fig.2. Question Paper Generator.

Block diagram tells about the overview of the database operation and the all functioning and non functioning model present in the system. Semantic based automatic question paper [5] generator system uses semantic analysis for the inputted question for recognizing specific pattern and artificial immune system is develop for generating question paper proper format.

#### IV. IMPLEMENTATION

The automatic question paper generator is system is implemented using java technology as web application. The fully working of the system stores courses, question banks etc. To achieve security and loose coupling we use MVC framework .MVC framework contains different module such provider module, bean module ,view module.

The provider module is nothing but providing connection on the basis of flag bits to all the module in the system as per requirement. Admin module is categorized into 3 different module. Add, delete and modify. add module has 3 different sub module. add course, add user, add question and similarly, delete module has three sections delete questions, users and course details. Modify module has also option to download question paper. There is one process module for processing all the pages so that system work as light as possible. while creating this system, we also keep in mind about security issues. Hence, course bean module is implemented for defining all the variable present in the system so that no one can access the non required variable outside the module. Security is main concern for the system. Therefore, OWASP all security issues including SQL injection, authentication bypass, XSS scripting and many more.

##### 2. Architecture of the system

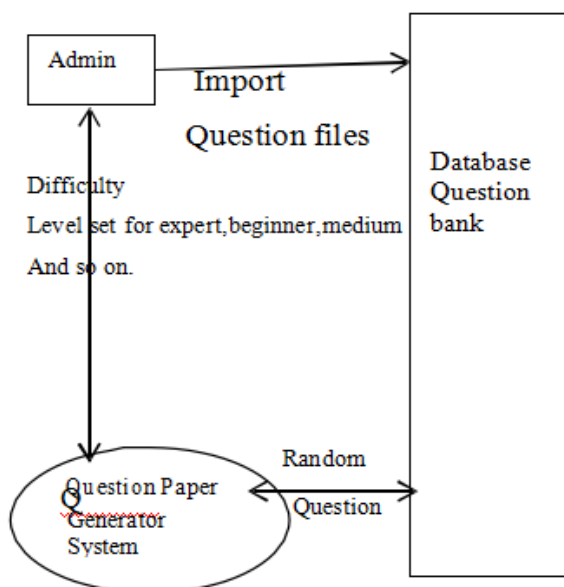


Fig.3. Architecture of system.

#### V. CONCLUSION

The automated question paper generator is web application which is real time application. This web application uses enhance algorithm and made for practice for learner and also for the competitive exam preparation conducted by an institution’s instructor. It is also easy for instructor that questions are imported directly to the system. we also keep in mind on repetition of question and randomization of questions. we also take care of security issues of proposed system. This system uses enhance algorithm leads to randomization of question and avoid repetition of question. different levels of questions are represented in the form of 0,1,2 etc. If the number of questions are gradually increasing then system is working more efficient due to machine learning and randomization also work as more as efficient. The software can be widely used in educational institution. It is web based application so user’s location cannot matter. This system provide unbiased result.

#### VI. ACKNOWLEDGEMENT

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