

# Automatic Questionnaire Generator System

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## ABSTRACT

College administrators will be able to construct papers automatically using a database of previously completed questionnaires thanks to a device called an Automatic Questionnaire Generator. This system will, by default, have the capacity to handle a variety of paper sets. It relieves the physical labor of all its arduous aspects and makes the task more efficient overall. The program may be of great use to organizations of a smaller or moderate size. The database, which may include hundreds of questions, will be consulted by the program that creates the questionnaire and will utilize the data from the database. The program will produce the random paper to ensure the same question will not be asked more than once.

**Keywords:** Question Paper System, Education Sector, SQL database, Paperless system, examination.

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## INTRODUCTION

In a real-world setting, the generation of a question paper is a very time-intensive process that wears out all educators by requiring them to do the same activities repeatedly. These problems and challenges are solved because of this initiative. For this project, we have developed a method that uses a system that chooses questions arbitrarily from a repository to produce the question paper.

In an Educational Institute, it is possible that the lack of a proper automated system for producing exam papers and maintaining data linked to them would prove to be a fatal flaw. In this article, we suggest an integrated automated system that, in addition to storing questions pertinent to a certain class, can also print a question paper that relies on the school's curriculum guide. The users' access has been restricted thanks to the implementation of a role-based hierarchy on our part [1]. In addition, the system uses security procedures that prevent the duplicating of test papers. There are facilities to enter and modify data appropriate for any academic institution, with total flexibility for choosing courses, semesters, curriculum, and layout. These provisions allow the data to be entered and edited in a suitable format. This makes it possible for educational institutes to create questions while maintaining the confidentiality and uniqueness of test papers [2]. This is a great benefit for organizations that have a restricted number of staff members and resources. For all of its functions,

our system's goals are to offer brisk processing, safe storage systems, and a high level of protection. It is a one-of-a-kind and one-of-a-kind piece of software employed in schools, organizations, universities, and by those who create tests and desire a large questionnaire database for the regular production of questions. This program has the potential to be used in a variety of medical, engineering, and coaching colleges for theoretical papers. Using these programs, you can generate random question papers (QP) whenever you choose in a matter of seconds. You can input an endless number of units and chapters provided that the platform's volume and capacity meet the requirements [3]. You need to initially select the topic before inputting questions. However, you have infinite opportunities to do so inside each chapter.

Questions are picked using a randomized algorithm, considering the course, semester, topic, and grades [4]. The administrators, to prevent time-consuming operations, and the students, to prepare for their examinations, both generate the questionnaire following the pattern described above.

### **Literature Review**

Exams and the creation of relevant question papers appear to be challenging, expensive, time-consuming, and unneeded for instructors due to the expanding area of education. As a result, various technologies, systems, and platforms have been developed to address the issue. We have conducted preliminary research on those apps, including the ones listed below.

The production of QP by hand by a person is a time-consuming and difficult process. On the other hand, an automated QP generation technology is a straightforward and effective alternative. In light of this, choose the questions according to the trends, and avoid asking the same questions again. The QP should then be generated orderly and saved as a file. The system is able to do a great deal of work straightforwardly and speedily. The algorithm that generates the exam papers draws questions from question banks and applies a variety of mathematical frameworks [1].

The authors in [1] developed a system that employs shuffling; this methodology randomises the questions created from the database. Reference [1] The technique they use is not only very easy to comprehend but also quite simple in its execution. This algorithm's implementation is readily adaptable to various systems and may be done with relative simplicity. A model question generation system was subsequently offered in [2], which gives a way to pick from several tough restrictions and makes it simple for the user to produce them quickly. The question paper generator provided this solution. It is comprised of several modules, each of which allows the system to swiftly affect the other systems. The work is simplified by modules such as the admin module, the user module, as well as the question entry and question management modules. The developers of [3] experimented with a technique in which the software automatically performed textual match and topic filtering. However, one of the primary shortcomings of this method was that only a restricted number of questions might be introduced into the computer. Reference [4] is a study that proposed a system based on fuzzy logic. This system categorized all of the limitations according to the algorithm so that the system could acclimate to them more readily. The authors of [5] use Bloom's Taxonomy as the foundation for their proposed classification system. It was an adaptive system; nevertheless, the input data was presumed to be free of any errors, which could impair the system's efficiency as a whole.

The process that must be followed by an independent in order to compose a fair examination paper is complicated. The quality of the examination paper depends on a diverse range of requirements; consequently, it is essential to consider the various levels of the students who will be taking the test. In addition, the learning outcomes for the course play an important part in the process of designing a systematic question paper. Therefore, it is a very important task to associate the learning result of the topic with the test that will be given on it. The automatic generation of examination papers results in the production of a stage that can be used to construct a well-organized examination paper. The automation would also make it easier to include many factors that determine the quality of a question paper. The purpose of the structure that will be shown in the next module is to automate the process of generating examination papers. This general framework may be updated to apply to various departments in institutions, which would make the evaluation requirements easier to fulfill. Before the student may take the test, the professors are required to create the questions to correspond to the modules studied for each topic. A good test question paper will often be appropriate for average students, but it will also include challenging problems for kids who are bright. Therefore, in the current day, the necessity of the hour is to automatically create question papers based on a teacher's inputted description using a semantically labeled question bank. This may be accomplished by employing software. In this context, we are putting into operation a system that generates the question paper based on the questions in this semantically organised question bank.

### **Proposed System**

The traditional methods of creating test papers that institutions use have various shortcomings, including the inclusion of repeated questions in the exam and the need to meet certain time constraints. We are putting up a different system as a solution to this problem. The Automatic QP Generator is a piece of software that might be useful to educational institutions, publishers, and those responsible for setting tests who want to amass a sizable question bank and prepare tests with ease regularly. Its primary focus is on categorizing, collecting, and managing a massive quantity of questions drawn from a wide range of scientific and non-scientific topics and related to various subject areas. Questions are graded according to their degree of difficulty. This program is comprised of two different modules, namely Admin and User.

Admin is a prominent staff member from the universities or organizations accountable for managing questions within restrictions. These limitations include including and updation of numerous factors like courses, topics, volumes, scores, and questions. The administrator will be given their own unique set of login credentials.

A user may be an undergraduate at the institution doing independent research for themselves, or it can be a teacher looking for a reliable sample of an internal exam. The user can construct a one-of-a-kind QP by simply entering the necessary details into the restrictions table provided by the program. This involves searching the database and building a complete QP using the methodology. Table 1 lists the fields to be entered by the user in the QP; it includes,

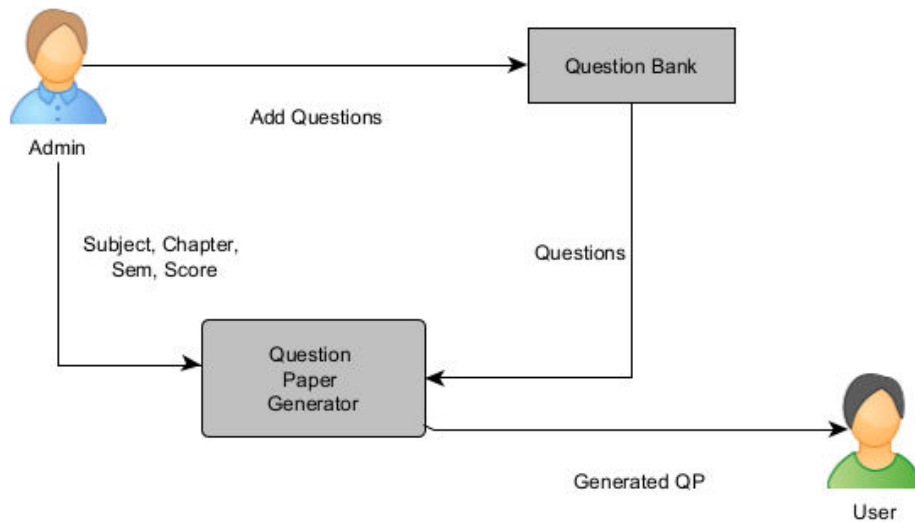
- (i) This term indicates the number of semesters that are included in the chosen program.
- (ii) Subject that will be covered during the course of the specified semester.
- (iii) The user will wish to pick the course since it corresponds to the department.

- (iv) It is the chapter that pertains to the topic that has been chosen.
- (v) The entire number of points allotted to the question paper serves as its weighting.

In the end, the user is then presented with a question box where they are required to type the question to save it in the repository. Figure 1 shows the working sequence of the proposed system.

**Table 1: QP format**

Course
Semester
Subject
Chapter
Score



**Figure 1: Proposed System Workflow**

### Algorithm

The program for each module carries out the following activities:

Admin Module:

- The administrator navigates to the next page by first entering the login and password allotted to him or her to connect to the system.
- The administrator has control over the repository, allowing him to add or delete subjects, semesters, courses, and chapters as needed.
- The administrator also has the option to eliminate any of these restrictions in order to fulfill the needs of the user.
- The administrator may also supply the customers who wish to have full access with their login information.

User Module:

- The user authenticates themselves by entering their login and password.

- A straightforward form allows users to choose the name of the class, the semester, the topic, and the percentage of the total mark each question is worth.
- Following this step, the user will type in the question, after which they will pick the "add" option to include the question in the repository.
- The user is presented with the form containing the restrictions used to produce the QP.
- The form includes restrictions such as the name of the course, the semester, the topic, and the total number of points.
- The user is presented with the choice to produce a question paper with 20, 40, or 80 marks.
- The user picks the create paper option, and the user is given a question paper based on the chosen topic.

### Result Evaluation

The generation of a questionnaire was an entirely manual operation, including stages such as analyzing the paper and assigning scores to the answers. It was a laborious undertaking, and a great deal of time was spent on this procedure. Table 2 lists the drawbacks of the existing system and how the proposed work overcomes those.

*Table 2: Comparison between Existing and Proposed System*

<b>Existing System</b>	<b>Proposed System</b>
The mechanism that is now in place requires an incredible amount of time.	A significant percentage is addressed by the system that assists in the generation of paper in an adept manner.
Preparing QP for additional subjects takes up an excessively long time since there are more topics.	The generation of question papers will take less time, thanks to the automation of the process.
Before finalizing the questions in a QP, a few go through a process of evaluation.	The possibility of paper leakage will be significantly reduced as a result of the admin having complete control over the system.
Since the paper is prepared by hand, the procedure takes more time.	This method is completely objective and allows for the generation of random questions with a simple button.

In order to make a comparison between the existing system and the proposed system, we have the results of three articles that were produced by both the manual and the automated systems. Comparative results of the Manual and Automated (Proposed) systems are tabulated in Table 3, and their graphical representation with respect to the QP generation time is shown in Figure 2.



## **Conclusion**

The primary function of this piece of software is to, via the use of a randomized algorithm, produce a questionnaire. The proposed technique is a desktop application that generates a one-of-a-kind collection of QP premised on the limitations imposed table. As a result, the program generates accurate output with a low chance of making mistakes. During the process of creating the test, the system is totally objective and makes use of randomness to generate questions. The user just has to complete a few more steps in order to produce an outstanding question paper. As a result, the Automatic Questionnaire Generator is a significantly more reliable and optimized system.

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