# Randomized Question Paper Generation

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## ABSTRACT

Knowledge is the technology that rules the world! However financial power can be used for many tasks to gain that knowledge through unscrupulous means. The more crafty use of monetary means can be seen in schools/colleges when juveniles make every effort to gain triumph though bigoted ways. This cognizance led to the development of generating question papers, arbitrary to the question paper setter. Here just the exclusive members were aware of the query of the paper. Thus a number of crevices where filled with the functioning of this system.

**Key Words:** Question Paper Generation; Databases; SQL; Optimization Algorithm

## INTRODUCTION

The preeminent purpose of creation of the Randomized Question Paper system was to bridge the gap which led biased accomplishment. A governing body is kept in charge of selecting the teachers, of their corresponding subjects, to be capable of using the interface .This smart question paper generating system allows preferred teachers to submit their pre-designed questions of related subject, in a specified amount of time (after which they would be logged out and cannot log-in by their own), through an online portal from where the bulk of the data gets stored into the database.

A cardinal authority is then eligible to generate a question paper, where none of the questions bear any association to their submitter as the series of questions published are picked unplanned and casually however with respect to the statistic figure.

A degree of hardness and ease is correlated with each question so as to achieve uniformity that is, the paper thus generated can neither be too easy nor too difficult. This deduction was observed by setting three different levels, namely Difficult, Moderate and Easy, each having a designated sum linked to it. Upon having the said weightage achieved while formation of the paper, no more questions from that level would further be selected.
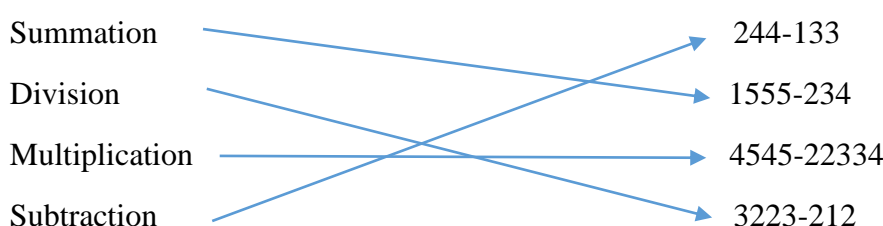
The most thought-provoking and compelling element of this system is of its "Dynamic question generation". This can be illustrated with a simple example:

Question: Find the sum of 110 and 34.

The underlined articles in the above question suggest that their values can be changed. The question maker provides a group of values at the creation of the question; the numeric value can be generated from a range provided with a random increment or decrement, not decided by the question maker.

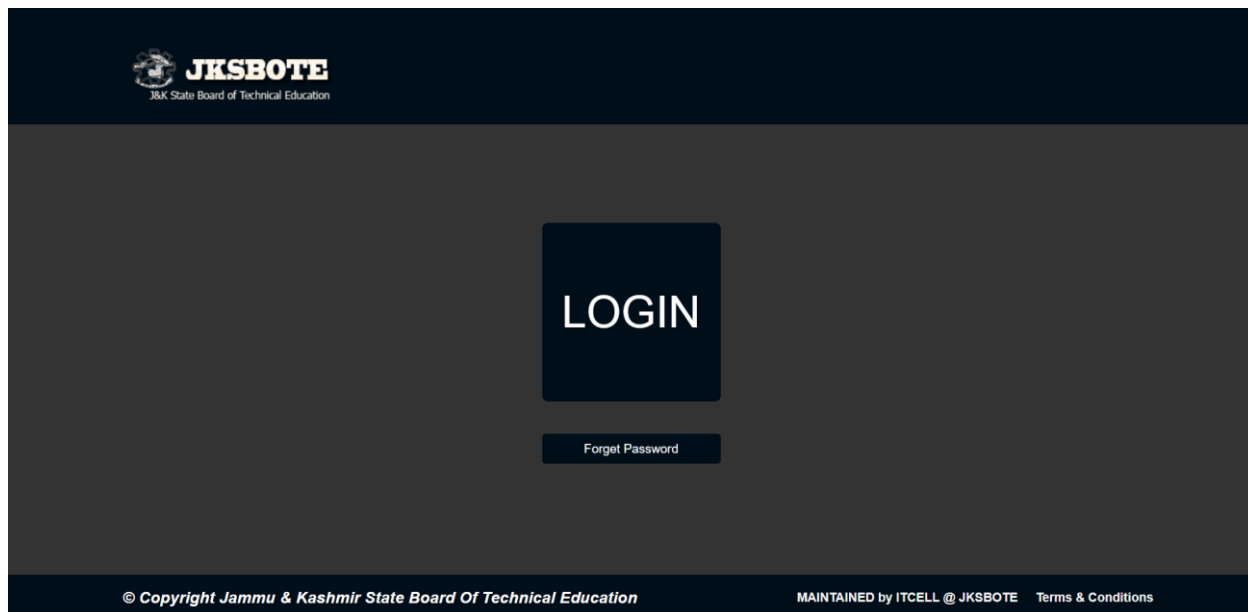Set of static functions                    Range of values

| Set of static functions | Range of values |
|---|---|
| Summation | 244-133 |
| Division | 1555-234 |
| Multiplication | 4545-22334 |
| Subtraction | 3223-212 |

**CONSTITUTION**



Fig1: The login page for all users

## 1. Defining a platform for curriculum entry

The structure was synthesis of various computer languages such as PHP, JavaScript, HTML, Jquery, CSS, and SQL. The germinal stage was to create an online platform from where the syllabus of the colossal number of subjects was to be added. This led to development of "online syllabus entry". Here data entry operators would be handed over a hard copy of the syllabus (as decided by the governing authority) and thus the doorway opened towards the approach of question making.

This portal consisted of selecting the Branch (here various discipline such as Computer sciences, Electrical engineering, Fashion technology and many more), followed by selection of semester (consisting of 6) and lastly followed by selection of subject. Once all the selection had been done, the operator needed to specify the number of units of that particular subject. A keen observation had to be made on part of the data entry operators that the number of marks of each unit should be a multiple of five and the summation of the marks of all the units should be equal to hundred, not more, not less! Had there been mistakes while administering the marks, an alert would popup notifying of the occurrence of mistake. Thus this concludes the initial stage of formulation of question bank.
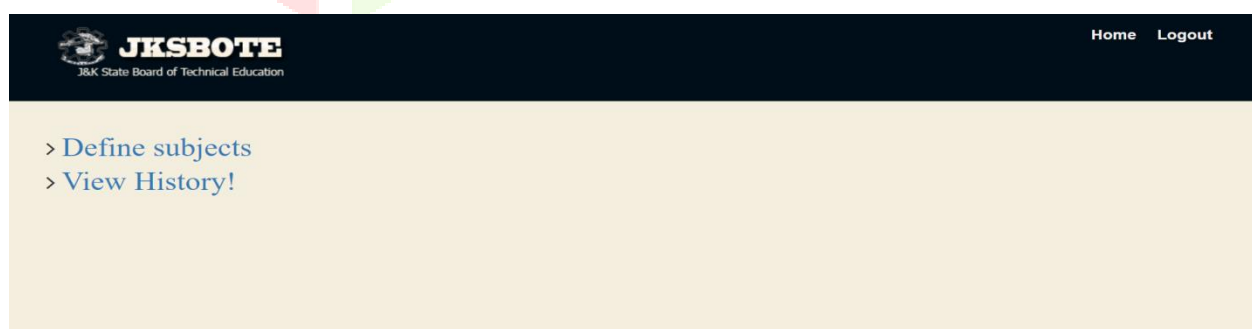


Fig 2. First Interface for data entry operators and process to add details of units

Fig 3. Second Interface for data entry operators and process to add details of units

## 2. Selection of teachers for composing questions

The prime speculation was to know which teachers are designated to which subjects and to assign them the task of submitting their pre-designed questions in the portal. A member of the organization dealt with the exercise of assigning the teachers to their corresponding subjects. The member also had the authority to remove already assigned teachers, if any complication arises. User ID's and passwords were provided to the teachers through OPT generation.



Fig 4. Interface for the authority assigning teachers, removing and checking the syllabus written
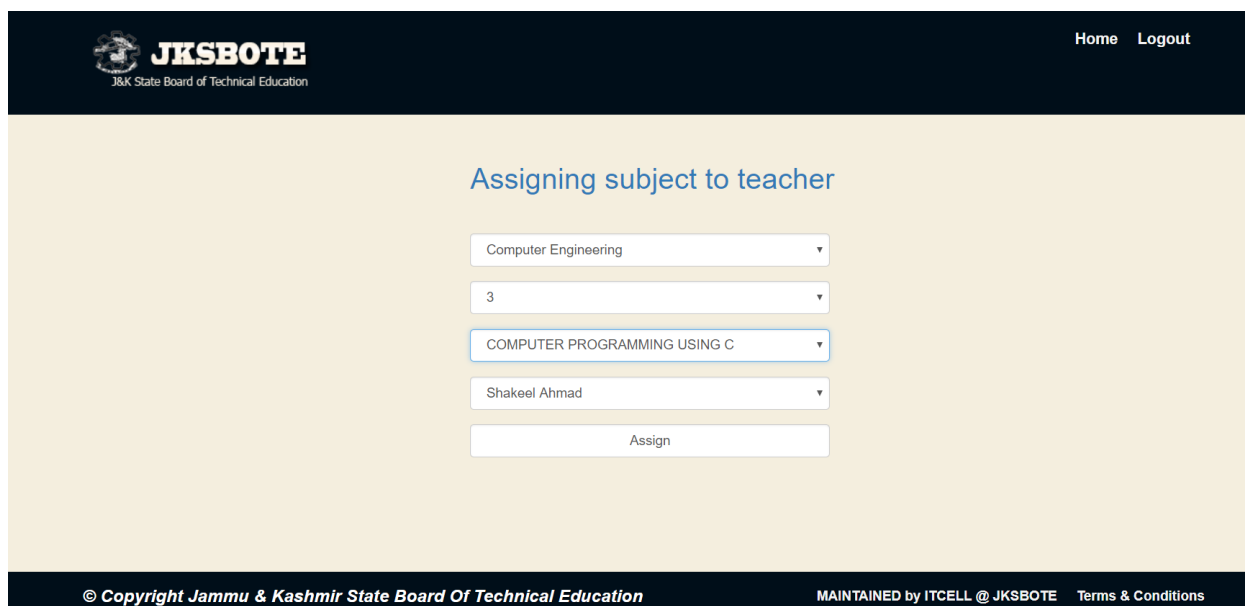
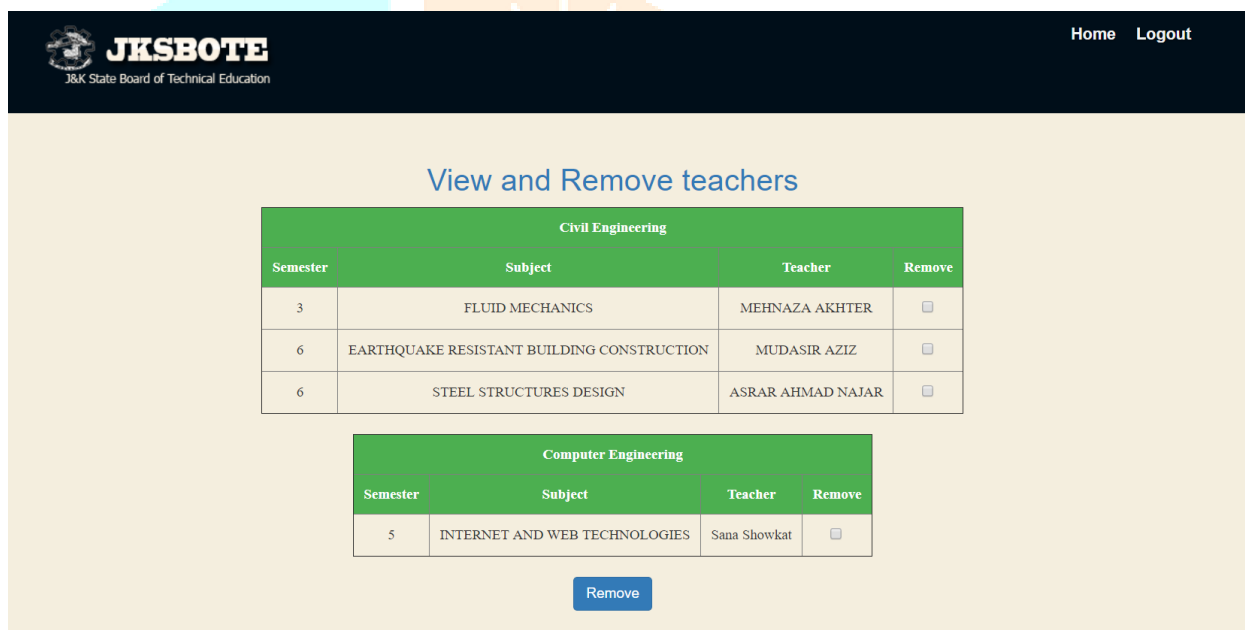Fig 5. Interface for subject assignment



Fig 6. Interface for modifications in subject assignment

### 3. Teachers logging into their accounts

Upon logging in, the teachers get a view of two sections, one where they have to plan/ structure their questions and another where they get a preview of their submitted questions.

The teacher begins by selecting one of the subjects from a list of already assigned subjects. Upon selection the number of units appear in dropdown with each unit corresponding a hint to it, that is what are the contents of this unit.

The question are divided into two parts, one consisting of those questions which are static in nature or in other words the theoretical questions and the other being dynamic in nature or numerical types. The writing of questions is done in a cascading way with consideration of the marks of the question right from the beginning. The teacher has to select a difficulty level out of three levels, namely Difficult, Moderate and Easy.
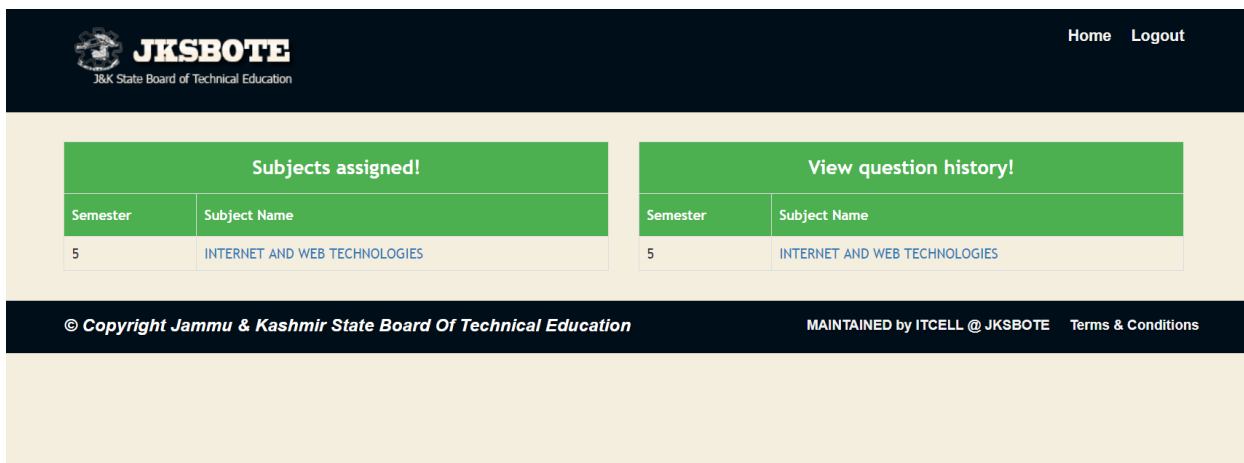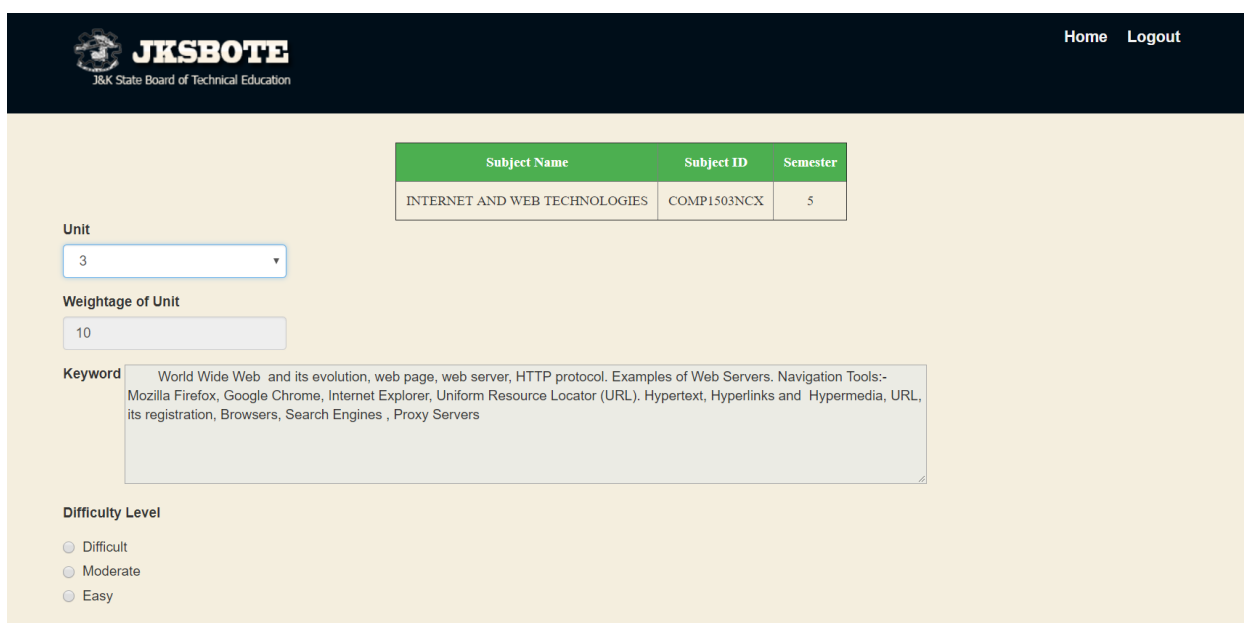
Fig.7. Login page of teacher



Fig.8.Procedure of writing the question

**NOT DYNAMIC**

A choice then has to be made whether this question is going to be dynamic or not, if not then upon selection a text-box would appear for the question to be written. Following it would appear another text-box designating the hint related to this question. Lastly an option would appear whether this question has any diagram associated to it, if then procedure of uploading that image would be undertaken. Finally comes the point where the marks need to be set up of the question constructed. The marks are pre-defined, they can be 5, 10 or 20 but however they go sync with the weightage of the unit, for example:

The wightage of the question papers conducted carry total marks of 200, out of which student has to attempt only 100 to pass. Thus if the weightage of a unit is supposed to be 20, then 40 marks from that unit are to be held in the paper, the question thus send from that unit can have marks of 5, 10 and 20, irrespective of the count. However if a unit is of 5 marks then the system would recognize that the questions set from this unit can have weightage of either 5 or 10 only.

An alert, presents with the assumed marks which helps the teachers recognize this problem if their calculation is dithered.

Once the question is submitted, the teachers can view the history from their respective accounts.

Fig. 9.Interface for question submission

## DYNAMIC

When chosen for the question to be dynamic, the teacher needs to write the question in fragments. Multiple choices are provided for each dialogue box so that the logic behind assembling the correct numeric values is validated. The function then randomly decides which value to be taken from the range and thus forms a question. Same procedure then follows as that of not dynamic question.

Fig. 10.Defining various segments of question

Fig. 11.Example of writing dynamic the question

### 4. Generation of question paper

A single authority has the function to then generate the question paper and to save them. Questions of a particular subject are selected randomly from the bulk of questions present in the database. A well structured paper presented has all the benchmarks fulfilled that is, the levels of difficulty, choices within the paper, and the total weightage. Thus with a press of single button, a question paper is generated which strikes no resemblance with the submitter of the paper and no account of anyone ever being able to see the contents of it.
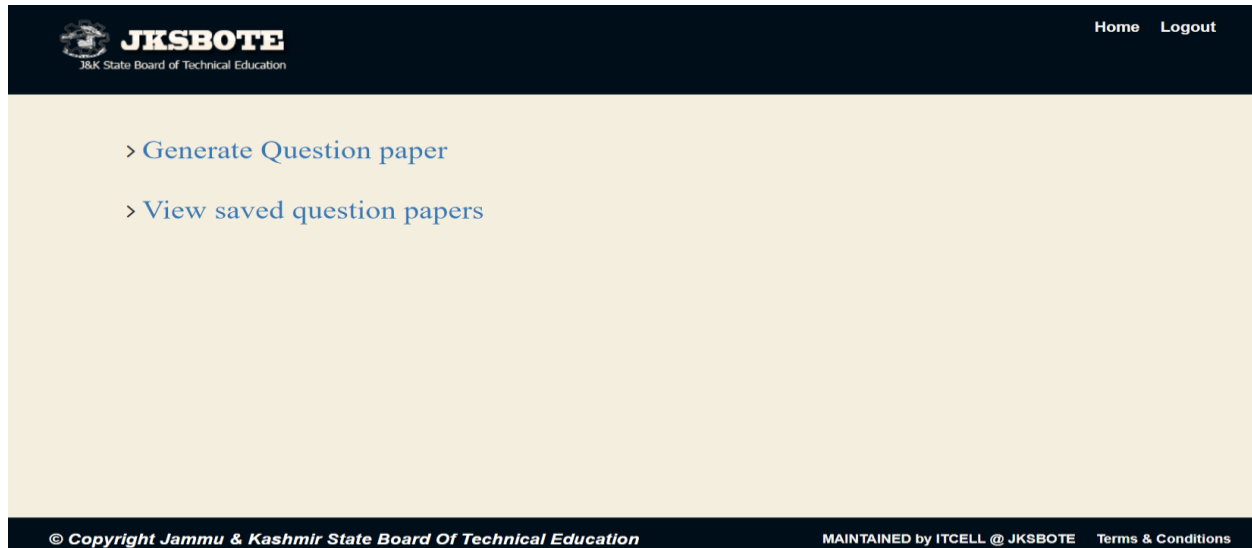


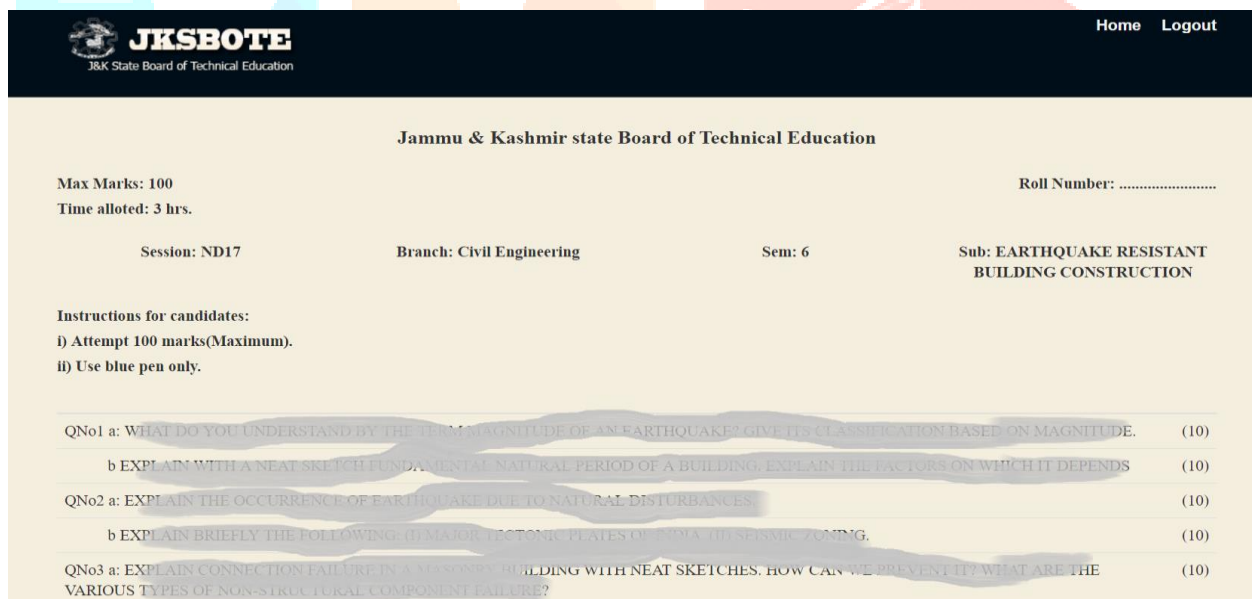Fig. 12 Login page of the authority for generating paper



Fig.13. Automatic question paper generation

## IMPLEMENTATION

Question paper management system can be used to reduce the redundancies which occur during setting of the question paper manually. This is a fair and an unbiased system which justifies the way examinations are held today!

## ADVANTAGES

- Wide portion coverage and efficient question paper generation.
- No chance of paper leaks.
- The system provides an unbiased result.
- Thus the system excludes human efforts and saves time and resources.

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