Question Bank Management and Generation System (QUEBSYS)

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Abstract: Everything is getting smarter day by day. From a landline phone to smartphone we have come a long way. So, we also came up with an idea to digitalise the question paper for-mation in schools and colleges. Quebsys (QUEstion Bank management SYStem) is a web app having a friendly interface which helps the faculty to login with their unique ID and set a question paper per their need or leave on the app to make a question paper for them. Also, a very simple interface which enables the faculty to update question, delete question or even change a question without hectic coding or mind workout. This system reduces the communication gap between the faculties and the students , following which it helps students to ask question separately. Also Quebsys has an AI bot which which will not only read the scanned printed question banks but will also be able to read or understand the scanned hand written question papers. This will make it easier to store questions in the database rather than typing.

Keywords: question paper generation; paperless; auto-mation; randomisation ; shuffling algorithm ; complexity ; information communication technology. component; formatting; style; styling; insert (key words)

I. INTRODUCTION

The Quebsys web app will be an extension of faculties in schools and colleges. It will reduce stress of making question paper before exam and can be used in the longer run. On this , the system chooses questions randomly in a way that the weightage of the questions makes up for 100 marks and according to difficulty that the faculty chooses , the questions are chosen based on their complexity level.

The web app has the following features: -

1. Unique ID- Each and every faculty will be given an unique ID which will distinguish between what subjects he teaches, what is his course structure, for how many years he is serving the college etc.

2. Update Question Bank- This will enable faculties to update a question bank without mind workout and stress.

3. Generate Question Paper- The faculty can generate question paper on the rules and regulations of the schools or college. (Example - For SRM University, there will be three options, CT1, CT2, And Model).

This Web app emphasises on Data Encryption Techniques and several layers of algorithms to make sure if any vulnerable attacks happen on the server the question paper will never be in hand of the attacker.
Also, this web app is designed as such that one cannot clone this website.

II. .EXISTING QUESTION PAPER GENERATION WEB APPS

The research paper , **"Framework for Automatic Examination Paper Generation System"** provided a thorough description into the process of automated paper generation . As the in the manual process generation of a equally balanced question paper by an individual is quite tough, and thus with this blending of technology into teaching and learning process is inevitable.

Here, the paper generator selects a question according to the pattern and complexity. This Mechanism also introduces notifying systems wherein any selected question is pointed so that it might not be selected again. This prevents reappearing of questions in subsequent papers.

The system introduces a highly efficient randomising algorithm which uses an array to store randomly generated questions. The questions are then selected against these array elements, thereby ensuring completely random generated question papers.

III.   DRAWBACK OF CURRENTLY AVAILABLE WEB APPS

1.   Safe Guard - Keeping the paper secured is one of the major hindrance that is usually found in the other systems and because of which the 5 layers of masking techniques has been implemented in this system.

2.   AI Bot: There is no such technique which has been implemented till now which can understand the hand written paper with the help of an OCR reader

3.   Predictability of the questions present in the database cannot be checked in the other systems, which makes the questions remain secure from the users and the admins.

4.   Unable to generate a paper with all types of question (Knowledge based, Quantitative Analysis based, Technical based, Qualitative Analysis based).

5.   Poor Environment Credentials - The Unique Id of the faculties are fetched form the college database which makes the credentials for the faculties unique with respect to that of the students credentials , which in short makes much more secured.

This system is not available in other existing systems failing which credentials are hacked or spoofed.
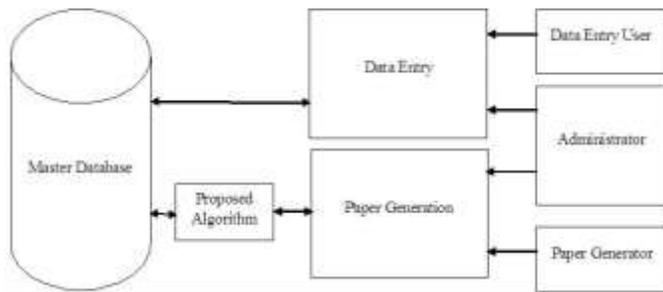
IV.   PROPOSED SYSTEM

Architecture of Automated Question Paper Generation System have proposed an improved system for Automatic Examination Question Paper Generation which is totally based upon the scuffling Algorithm and Role-based Hierarchy model.

The role-based hierarchy allows the tasks to be disunited among a number of users depending upon their posts or roles. A central administrator will have complete authority over all the tasks and users.

The interface is provided using Java and MySQL database is used to store questions and related data. Syllabus and pattern of any program is considered for all questions and the subsequent generated papers. Also, the system is fully customisable according to any educational institute and its program schemes.

Encrypted Algorithms are used to store admin and user passwords for enhancing the security weightage.

The shuffling algorithm uses a basic randomisation algorithm with a flag system used to mark selected questions. This prevents the questions from being repeated in subsequent examination papers.

We are also using a 5 layered masking technique which is used to prevent the hacker from getting the actual paper.

In this, at the first level the hacker will receive a message from
the web app to stop hacking, in second level he will be provided with an encrypted FAKE paper and in the third level he will be provided with a normal text paper as if that is real, and in remaining two levels he will have to go through multiple authentication steps.

V. ADVANTAGES

1.   **Time Accumulator -** On a short period when the exams come near , it may usually happen that the faculty might forget to print the question paper due to the busy schedule , So this will help the faculty to help in producing question paper right before exam.

2.   **Secured Allowance** - Respective faculties of respective subjects will get access to his/her subject's question bank if the he/she is registered or is signed up with the system.

3.   **Indemnification** - It may happen that questions can be wrongly typed or can have some faults in the question inserted in the server so what can be done is that The Faculty's of the respective subject can also alter the question in the question bank of that respective subject and retrieve it if by mistake something wrong happened.

4.   **Outlook** - The interface of the web-app is made so simple that any user can freely access the system without any hesitation . So simple UI/UX is an advantage in this system to stop the mind workout and be stress free before the exams.

5.   **Technically Agile** - Making this system helpful for the lecturers is bringing an extension to the faculty in this system through a digitisation process which is the current scenario in all fields in today's generation.

VI. FUTURE ENHANCEMENTS

In future we will be launching our quebsys social android app as well as update of our website where the students can also login and a forum section will be created where the students as well as teachers can conclude and discuss on some random topics or on the topics discussed in the lecture hours so with this it will provide an extension to the student and the faculty for them to communicate personally without any hesitation. This social app will start with a process for students who are shy in asking question in class. If they have doubt they can easily interact with the faculty in the private chat section with the faculty which will help them to clarify their doubts without any difficulties. Series of test and exams will be conducted which will keep a track on each student's performance on how much preparation is required and what are the important topics to cover and tips to revise entire syllabus in short time. Also an AI bot will be implemented in the system which will guide the student on how to prepare for exams and will also motivate him to study well and get far.

CONCLUSION

Taking into consideration the fact that life will be easy in some way or the other , this web app promises to aid many students and Faculties and Lecturers to undergo a transition which this world has never seen. This system will create a virtual class between a student and faculty where the communication between the two will be made easier and simpler and also helpful to

the students who feels shy to ask question in front of the class. This will create a revolution in the entire education system and will aid many students to develop their skills towards the academics and will let them know their real potential towards the life and towards academics too. This system will help them score marks and will provide idea on how the exam pattern will be and will provide an easy practice sessions to prepare for their exam. Thus, quebsys , the Automatic question paper management and generation portal is being developed and there will be a great increment in the extension of students and teacher community and which will create a virtual link between this two.

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