

Incremental Question Paper Generator

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Abstract: Exams are getting digitized all over the world. Basically, meaning that the traditional paper-based tests are being replaced by the certain computer-based tests which have proven to be both more consistent in allocating marks and faster than teacher correcting papers. The traditional exams usually consisted of subjective answers which were not the best way of grading the student's perception of the subject. Hence, we are developing a computer-based system that will generate MCQ based question that will be better suited to grade students academically. So, Incremental Question Paper Generator (IQPG) is an attempt at developing a software which can implement adaptive evaluation along with generation of questions on its own. The software aims to generate an increasingly difficult or easy in simpler words, it aims to generate a question paper which dynamically changes the difficulty of its questions. Along the same the software generates these questions by learning from a pre-made dataset of questions.

Keywords: IQPG – Incremental Question Paper Generator, QPM – Question Paper Model, NLP – Natural Language Processing, AE – Adaptive Evaluation, ML – Machine Learning.

I. INTRODUCTION

The "Incremental Question Paper Generator" has been developed to override the problems prevailing in the practicing manual system. This software is supported to eliminate and, in some cases, reduce the hardships faced by the existing system. Moreover, this system is designed for the read of the company to carry out operations in a smooth and effective manner. A design of suitable automated system for generating question papers and managing related data may prove vital in an Educational System.

The application is reduced as much as possible to avoid errors while entering the data. It also provides error message while entering invalid data. No formal knowledge is needed for the user to use this system. Thus, by this all it proves it is user-friendly. IQPG, as described above, can lead to error free, secure, rollable and fast management system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus, it will help organization in better utilization of resources.

Every organization, whether big or small, has challenges to overcome and managing the information of Course, Branch, Question, Subject, Semester. Every Question Paper Maker has different Branch needs; therefore, we design exclusive student management systems that are adapted to your managerial requirements. This is designed to assist in strategic planning, and will help you ensure that you are equipped with the right level of information and details for your future goals. Also, for those busy executive who are always on the go, our systems come with remote access features, which will allow you to manage your time.

II. LITERATURE SURVEY

Ragasudha and M. Saravanan [1] has proposed "Secure Automatic Question Paper with Reconfigurable Constraints". To overcome the challenges faced by the manual question paper making an Automated Question Paper Maker is being implemented. Bloom's Taxonomy and Random Package plays a vital role to create high quality of question paper. In existing systems use of various ML Algorithms such as IDF Algorithm, Randomization Algorithm, NLP Algorithm, etc. In the proposed system use of Python language along with the SQLite3, random, fpdf and smtpib. The entry and retrieval of questions in the database are based on blooms taxonomy. In database the questions will be separated based on easy, medium and hard question. According to the user's selection the type (hard, easy, medium) of question paper will be generated in a PDF form and mailed to the authorized user.

Prateek Pisat, Devansh Modi, Shrimangal Rewagad, Ganesh Sawant and Deepshikha Chaturvedi [2] has proposed "Question Paper Generator and Answer Verifier". They developed a computer-based system that will generate

objective based question that will be better suited to grade students academically. The system will generate a question paper and it will grade the student after he/she has solved the question paper. The other problem with objective based question is that same question is given to all the students, which basically leads to plagiarism which completely defeats the purpose of writing an assignment in the first place. To avoid all these issues, they have incepted a software through which students can appear for questions, get them corrected via the software and the marks will be automatically updated in the college database. Completely avoiding the rigorous task. This system will save time as well as the efforts put in by the teachers, which they can spend on more productive activities.

Mrunal Fatangare, Rushikesh Pangare, Shreyas Dorle, Uday Biradar and Kaustubh Kale [3] has proposed “Andriod Based Exam Paper Generator”. In Android Based Exam Paper Generator they are focusing to create a process which will take less time and which will be more effective in every normal scenario, the examination committee of every Institute works in a very conventional manner. This way of working is very time consuming and requires a lot of efforts in it. Through the help of their project all the drawbacks and complexities will be removed. In this android application they have implemented a system in which random questions will be picked by mapping it with the conditions provided. It will be less time consuming and easier too.

2.1 Objective

Create a solution which generates a question paper that adjusts the difficulty of the questions based on the responses submitted by the user. Create a solution which can implement dynamic evaluation along with using NLP to generate the questions simultaneously.

III. EXISTING SYSTEM

The current question paper generator system includes sample database for generating questions which leads to the probability of same questions paper appearing many times. Because of this question cracking the paper becomes easy. To change this, we need to bring adaptive evaluation in the system, which will lead to increasing difficulty after answering the questions right & decreasing the difficulty when answered wrong. This leads to make paper difficult & get the accurate marks of students on their skills.

IV. SYSTEM ARCHITECTURE

The system will consist of two main modules. First module will be the Data extracting and the second is the question generation module.

4.1 Data Extracting Module

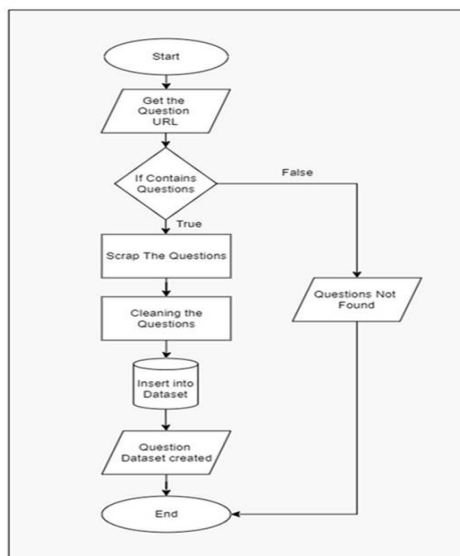


Fig. 1 - Extracting data from websites

In this module, the questions can be scrapped from a website or can be taken from the teacher/student for generation of the paper. A single dataset is maintained for all the questions related to the subject. The questions are scrapped and cleaned using NLP techniques. Cleaning includes removing duplication, null values, incomplete questions, etc. Questions are assigned with the difficulty level based on bloom’s taxonomy. The questions dataset can be displayed along with its level of difficulty in the system once it is generated. The dataflow of Extracting data is shown in fig. 1.

4.2 Question Generation Module

This module will generate one or multiple questions papers based on the difficulty which was set or by the answers provided by users. The difficulty of the paper will change based on the total marks provided. The dataflow of Question generation is shown in fig. 2.

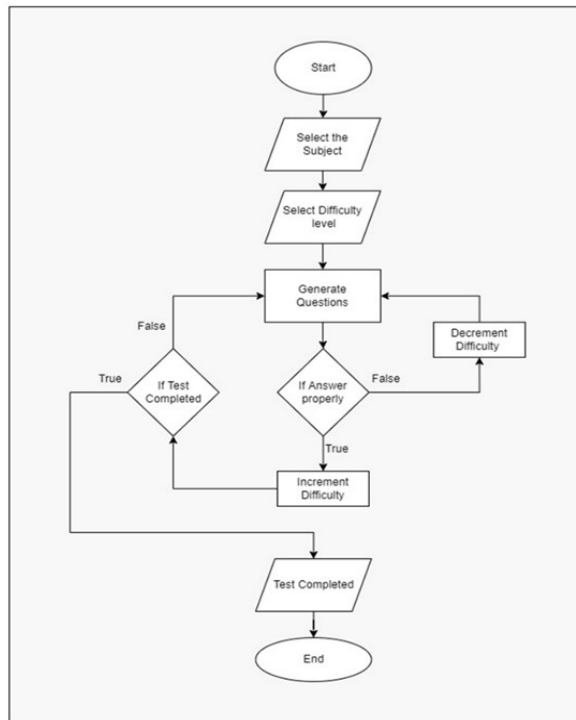


Fig. 2 - Question Generation Flowchart

V. SYSTEM ARCHITECTURE

The system will be used by three users’ group, they are Student, Teacher, and Moderator.

5.1 Data Extracting Module

The students will have their separate database. They need to register and login into the system. Questions will be provided by them and are classified based on the subject he/she may entered. Multiple questions papers can also be generated based on the marks provided.

5.2 QPM Database

The QPM Database acts as a storage in the system. Data is stored and retrieved automatically without any third person. QPM Database can be monitored by the Moderator if required.

5.3 Reference Link

Reference link acts as an external source of data from where data is Scrapped and Cleaned. This links are strictly given only by the Moderator.

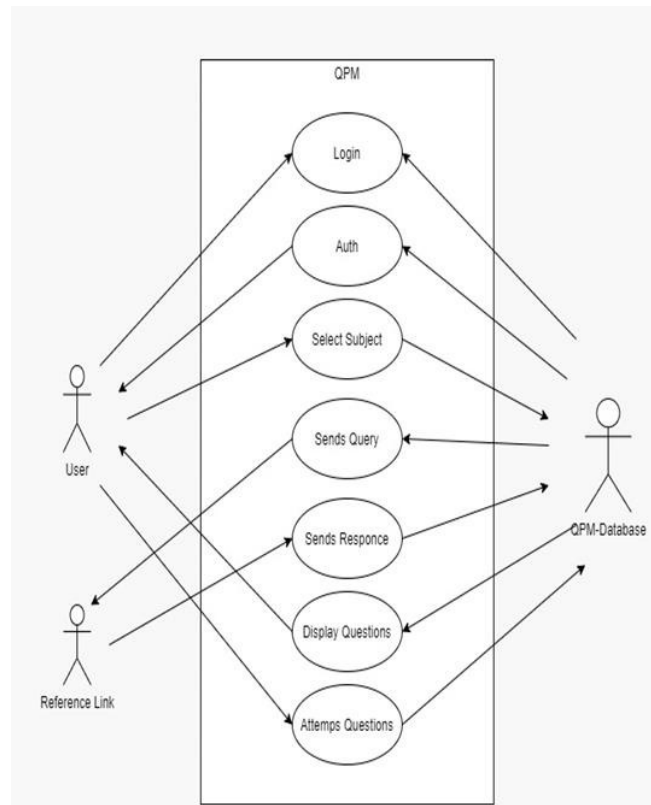


Fig. 3 – Use case of QPM

VI. CONCLUSION

The main purpose of this application is to generate question considering the difficulty and previous marks provided a reference link without any need of moderation. The algorithm used for paper generation avoids repetition of question. The format of the paper keeps on changes depending on the marks provided.

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REFERENCES

- [1]. Ragasudha, M. Saravanan “Secure Automatic Question Paper with Reconfigurable Constraints” Sixth International Conference on Wireless Communications, Signal Processing and Networking (WiSPNET) | ©2021 IEEE.
- [2]. Pratik Pisat, Shrimangal Rewagad, Devansh Modi, Ganesh Sawant, Prof. Deepshikha Chaturvedi “Question Paper Generator and Answer Verifier” International Conference on Energy, Communication, Data Analytics and Soft Computing (ICECDS-2017).
- [3]. Mrunal Fatangare, Rushikesh Pangare, Shreyas Dorle, Uday Biradar and Kaustubh Kale “Andriod Based Exam Paper Generator” Proceedings of the Second International Conference on Inventive Systems and Control (ICISC-2018)