National University of Computer & Emerging Sciences

Ingenious Automated Question Generator

Final Project Report

Programming Fundamentals

Section – BSE-1B

Group Members

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Project Report

Introduction

The program that we've made is specifically for the aid of teachers and teaching institutions. Due to the global pandemic, all of us are restricted to work remotely. Since it is the new normal, we have to adjust accordingly. Studies must go on so in order to take tests and quizzes of students, we have developed a program that will randomly select questions from different topics and print a unique question paper. Our aim is to make sure that teachers are able to conduct assessments with ease.

Background

Upon research, it came to our knowledge that there are very few such softwares which could fulfill these requirements. Some of them were extremely complicated to operate and others were pricey. We considered many other programs like airport management system and super market billings, but there already were very good softwares available for these tasks hence we decided to work on something which is not readily available.

Project Specifications

The code has three main sections. In the first section, it asks the user to login with the assigned username and password.

Next a selection screen is displayed. The user has 5 options to choose from

1. Questions from Topic-1
2. Questions from Topic-2
3. Questions from Topic-3
4. Preview
5. Exit

Firstly, it asks the user to choose a topic to find questions from.

Secondly, the user needs to select a difficulty from the chosen topic.

Thirdly, it gives the user the option to either preview the exam or exit the program.

Problem Analysis

The main analysis for this program was how to break the problems down into smaller modules for the multiple selection menus that need to be displayed.

First module was how to extract questions *randomly* from text files.

Second module was how to assign different marks based on varying difficulties.

Third module was to give the user the chance to preview the questions already selected.

Lastly, we made sure that only authorized personnel access the program.

Solution Design

The software that we've produced is specifically for educational purposes. Due to the *COVID-19* pandemic, all the activities including examinations that were supposed to be conducted in a particular environment have been shifted to each individual's home. To ensure the credibility of the exams, each student would get a random question paper with the aid of this software.

Our program generates question papers based on difficulty and topics as selected by the user. The marks of each question along with total marks are also displayed.

The unique feature of our program is the authentication of the user. The user needs to enter the correct login details i.e., username and password in order to generate a question paper.

Implementation & Testing

We have thoroughly tested our code while we were programming. We used relevant test data to make sure the program runs smoothly on all types of test data. We made sure that what we had interpreted was also being executed.

Project Breakdown Structure

Writing the entire code took us approximately 16 Days since our project is unique and not easily discoverable on the web.

The first 4-5 days, we wrote a pseudocode to help us better understand the flow of code and we all gathered to brainstorm ideas.

The next 7-8 days, we wrote the program code from scratch. We did have a peak at other similar systems such as a bank management system to help us better understand how our code should perform.

The last 2-3 days, we checked our code with different test data types such as Normal test data, boundary test data, abnormal test data to name a few.

All the members gathered to write the code and almost all of us contributed equally. Our leader *Umer Farooq* wrote the code for the intro and also helped in writing the program code for the whole project. He contributed a bit more than others.

Results

The result of our project is that this code may be used as a basic for programmers to develop systems that have a similar aim.

Conclusion

After making with project, we can deduce that a program of this stature can be implemented in real-world institutions and organizations who need to make sure that no student is left behind and all the students are fairly graded.