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Online Examination Question Bank, Quiz Attempt and Result Evaluation Portal

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Abstract: The Online Examination Question Bank, Quiz Attempt, and Result Evaluation portal is a web-based application development using a React.js frontend, Spring boot RESTful backend, and database to provide a complete digital examination management solution. The portal provides a complete digital examination management solution. This examination web application provides an efficient and user friendly portal for conducting examinations on the online environment. The examination can be created dynamically by selecting the questions from the question bank and it also defines the time limit and also it provides the evaluation results after completing the examination. Once the user submit their answer responses the backend would dynamically evaluates the examination based on the evaluation rules and it also displays the results so the user can view and review their results simultaneously. This online examination platform is the practical implementation of the full stack project and also it helps to the educational institutions and online learning platforms.

Index Terms: RESTful Architecture, Spring Boot REST API, Online line Quiz, Online Examination, React.js

I. INTRODUCTION

The online examination question bank & result evaluation portal is a web application the purpose of this project is to simplify the examination process. The project was developed with react.js for frontend and springboot for backend. The examinations are held based on the pre-defined criteria that are time duration and marks rules. This project enables the students can take their examination within the specified time limit. Once the examination completed then the answers will be securely transmitted to the server for the result evaluation purpose. Due to this the students can view their results instantly. This portal facilitates the solution for online examinations. This paper was helpful for educational institutions and online learning platforms.

II. LITERATURE REVIEW

Past research indicates thus online examination systems is the solution for the paper based examinations. The previous examination requires the manual evaluation it was time-consuming and also leads to errors some times. The digital question bank helps in creating questions and also it avoids the repetition. There are many online examination systems are exist but it would have lack of flexibility and also have some loop holes due to this there may be a chance to mislead the students. The solution for this problem we introduced automated result evaluation this process reduces the manual evaluation and also reduces the errors which are generated by manual evaluation finally the literature review confirms the digital examination technique provides an effective solution for educational institutions and online learning platforms.

III. METHODOLOGY

The project online examination system follows a fullstack approach. The frontend developed with react.js and the backend was developed with springboot and the database is used to store the questions, answers, user details and results securely. The admin manages the quizzes and create the questions and also set the time duration based on the pre-defined criteria. Once the user submitted their examination then the responses will send to the server then the evaluation would be started on the backend based on the rules then the results would generated automatically.

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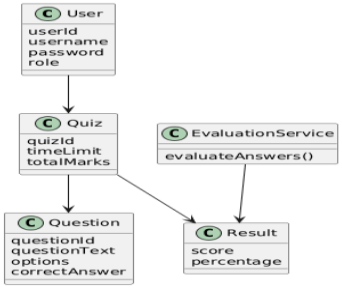

Fig. 1: 3 Tier Architecture of the System

3.1 Datasets

This online examination system uses the datasets these datasets are stored in the database. The datasets includes the questions, question options and correct answers and also it includes the question id time limits and result evaluation rules. These all datasets are maintained in a database due to this the system ensures the consistency and real time data processing.

3.2 Data processing

The data processing would starts from the user-input. The user will enter their valid credential through the react.js frontend interface. Mainly the data processing involved in collecting validating and evaluating the data and the backend uses the springboot then the server validates the data and the validated data will be securely stored in the database during the submission process the system will compare the submitted responses with the correct options that are stored in the question bank. The results are stored in the database. This automated evaluation reduces the human errors.

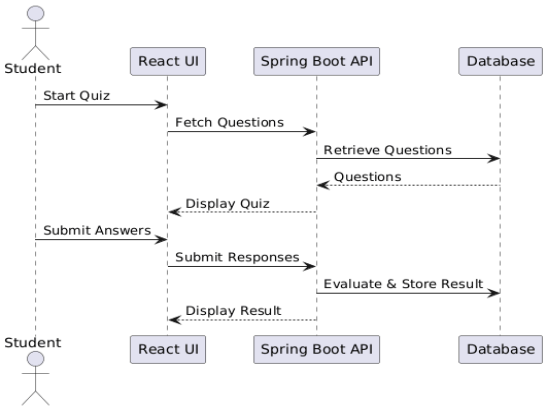

Fig. 2: Flow of the process in the System

3.3 Recommendation using system design

These recommendation system is used to suggest the students to practice the questions. Based on the performance of the students it analyzes the previous student attempts in scores and topic-wise and accuracy each and every details that are stored in the database. The backend evaluates the performance based on the priority levels of the topics.

3.4 System Architecture

The online examination system follows the 3tier system architecture, majorly the system architecture consists of 3-tier architecture it was application layer, presentation layer and database layer. in the client-side it was developed with react.js for attractive user interface. The server-side we use the springboot to manages the requests like question banks submissions and evaluation of results, these system architecture supports the system expansion.

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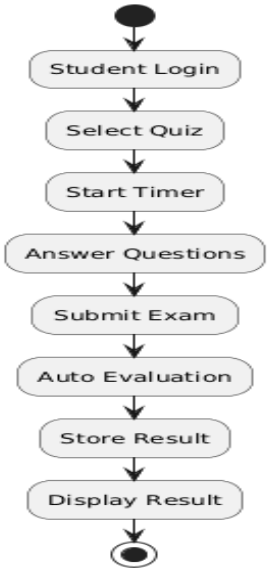

Fig. 3 Steps used for exam result

3.5 Evolution methodology

The major focus of this evaluation methodology is to automatically evaluate the student responses. After the submission of the questions the system will checks with the options that are stored in the database. Once the examination was completed the backend compare the student responses with the correct options from the question bank. The marks will be calculated automatically without any manual corrections. The evaluated results were securely stored in the database then the students also view their results instantly within a less amount of period.

IV. RESULT

The final result of this project is to implementation of the online examination web portal was successfully completed with all modules. The modules may include the question bank, creation of quizzes and attempting the quizzes, result evaluation and time durations all these are working as expected. the system would handles the quiz submissions and that are evaluated and the results were generated automatically, overall the project overcomes all the traditional and manual evaluation methods.

V. DISCUSSION

This online examination system project enables the automated exam evaluation and improves the efficiency and generates the results automatically and mostly the students are benefited when the results are declared after completing the examination. The system is scalable to use multiple users can access this simultaneously overall the project meets the required and expected objectives successfully.

VI. CONCLUSION

The main purpose of this online examination project is to change the traditional way of examination. This project provides a digital solution for the examinations. This project successfully meets the objectives like quiz creation, quiz attempt and the results are generated instantly. By using this we can overcame the difficulty of traditional examinations, overall the project meets the objectives successfully.

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