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Cloud-Based Online Examination System

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Abstract: Cloud Based Online Examination System is a web application. It helps the primary school students and teachers with the ease of conducting examinations. Students can answer exams online and get instant results for automated questions. Teachers can create different question papers for different subjects and standards using Artificial Intelligence. An AI chatbot has been implemented which helps the students with their academic queries. All exam data, student information and results are stored securely using cloud technology. This project aims to help with managing examinations, reducing teacher workload and providing an interactive learning experience for the students.

Keywords: Cloud Computing, Online Examination, Artificial Intelligence, Automated Assessment, Educational Chatbot

I. INTRODUCTION

The Cloud Based Online Examination System for Standards 1st to 5th Using Artificial Intelligence is a web-based education system where examinations can be easily conducted. Conducting examinations manually requires a lot of time and effort such as creating question papers, conducting examinations, marking exams and keeping records of exam results. Our system uses Artificial Intelligence (AI) and the cloud to provide an efficient, accessible and interactive exam experience.

Students can take online examinations and instantly get their results for objective type questions that have been automatically marked. Teachers can create question papers using AI according to the student's standard, subject, chapter and desired difficulty level. An AI powered education chatbot helps students understand concepts and find solutions to any questions they may have using easy to understand explanations.

By storing data on the cloud we are able to provide an efficient way to manage student profiles, question bank, exam results and answers. We want to provide an efficient way to access the data. The system will aim to make examinations easier to conduct by providing automated question generation, digital marking and intelligent learning support. This will help reduce the workload of teachers, increase efficiency when marking and will encourage technology aided learning. Our platform shows how AI can be used within educational tools to digitally transform exam systems within schools. It provides an organised and scalable solution for students.

II. LITERATURE SURVEY

A. Cloud Based Online Examination System

In this research paper, Shixian Song (2021) has discussed about building an online examination system using cloud computing technology. This research explains various aspects of online examination using cloud technology. It also describes the storing of data, managing the examination process and analysing examination results. This will provide the basis for building an online examination system based on the cloud. However, it does not focus much on the needs of primary school students.

B. AI Based Question Paper Generator

Kurdi et al. (2020) have discussed various methods used for generating questions automatically in their research paper titled A Systematic Review of Automatic Question Generation for Educational Purposes. This research discusses methods of generating questions along with the issues faced when creating high quality, difficult and relevant questions. This will be useful for building an AI based question paper generator. This will allow teachers to easily create questions using different standards, subjects and chapters. However, the questions need verification to ensure they are correct.

C. Artificial Intelligence in Education

This systematic review discusses the use of artificial intelligence in education. (Systematic Review of Research on Artificial Intelligence in K–12 Education (2017–2022) 2024). This explores different ways AI can be used such as intelligent tutoring, personalisation and educational tools. This research shows how AI can be used to help teach. It is relevant to the proposed system as AI can help teachers create questions for examinations and teach students from Standards 1st to 5th.

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D. Chatbot System in Education

Okonkwo and Ade-Ibijola (2021) have explored the use of chatbots in education. This research discusses how chatbots can be used to help students learn. They can provide information and help improve the interaction between the student and the education system. This research will support the use of an AI chatbot within the project. This allows students to ask academic questions and get simple answers. However, the answers provided must be monitored to ensure they are accurate for primary school students.

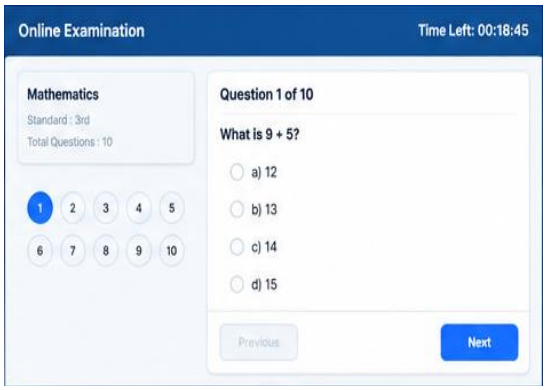
III. METHODOLOGY

The proposed Cloud Based Online Examination System has been developed using Python for the backend and MongoDB Atlas for the cloud database. The system is split into modules. The first module allows users to register and log in. This includes students, teachers and administrators. The next module allows teachers to generate question papers using Artificial Intelligence (AI). The questions can be created using standards, subjects and difficulty. Students can then take online examinations. The backend will automatically mark objective questions and show instant results. An AI chatbot is used to help students with any academic questions they have by providing simple answers. Finally, the data, student information, questions and results will be stored within the cloud database.

IV. EXPERIMENTAL RESULTS

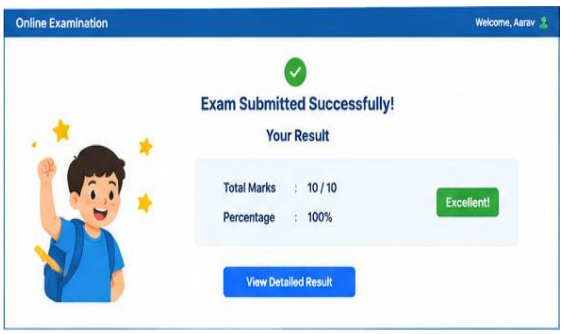


(1)

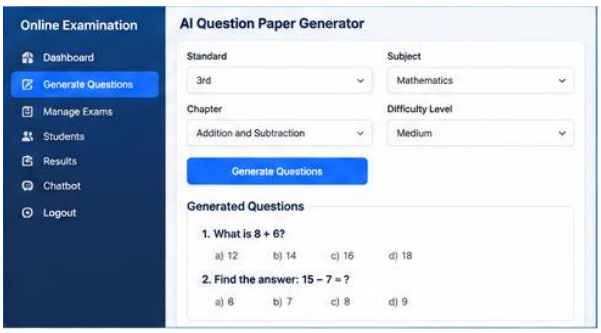


(2)

Fig. 1. Login page for students, teachers, and administrators. Fig. 2. Online examination interface showing questions and the remaining time.



(3)



(4)

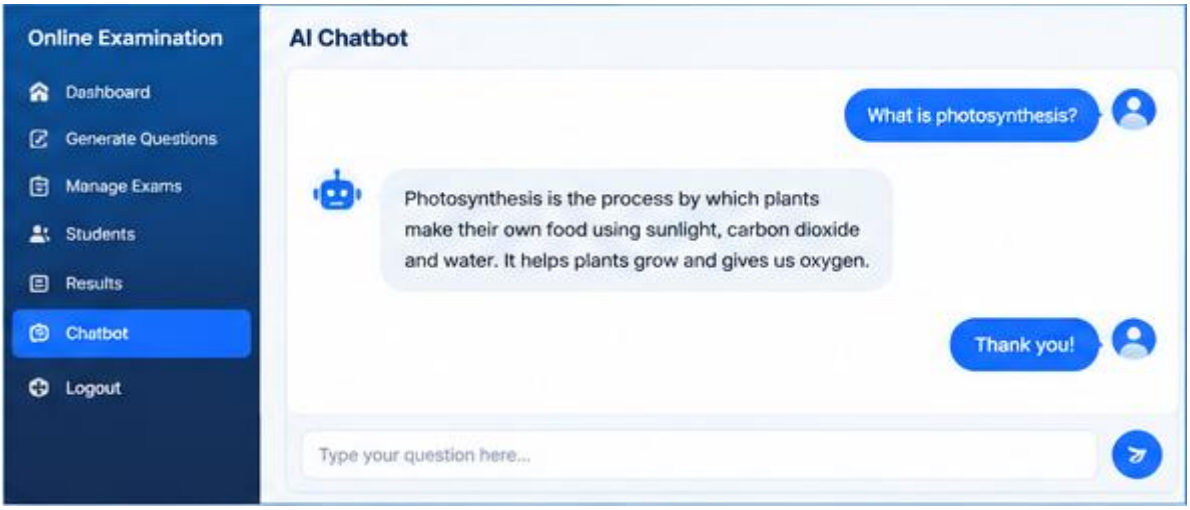
Fig. 3. The system automatically evaluates objective questions and displays the marks and percentage after submission. Fig. 4. Teachers select the standard, subject, chapter, and difficulty level to generate AI-assisted questions, then review and edit them.

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(5)

Fig. 5. The chatbot responds to students' academic questions with simple, age-appropriate explanations.

V. CONCLUSION

The Cloud-Based Online Exam System for Standards 1st to 5th is intended to make the examination process easier by using cloud computing and Artificial Intelligence (AI). Teachers can create question papers while students can take an online exam and get instant feedback. An AI chatbot is also available to help students with any academic queries. This makes the workload of teachers easier, improves exam organisation and makes the digital learning process easier for primary school students.

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