

# **SmartQuiz: Empowering Education with Dynamic and Ethical MCQ Generation**

## **Abstract:**

In response to the increasing demand for versatile and efficient educational assessment tools, this major project introduces a groundbreaking website capable of dynamically generating multiple-choice questions (MCQs) from diverse input texts. With a primary focus on the computer science domain, the project pioneers the creation of a specialized dataset tailored to computer science subjects. This dataset serves as a foundation for fine-tuning a pre-trained question generation model, adapting it to the specific nuances and terminologies of the field. The website leverages advanced natural language processing (NLP) techniques, incorporating text summarization using BERTSUM, keyword extraction facilitated by Python Keyphrase Extraction (PKE), efficient keyword mapping with FlashText, and contextually relevant distractor generation powered by Sense2Vec. This versatile approach allows the system to process input texts across various domains, providing a flexible solution for educators and learners. The project places a strong emphasis on user experience, featuring a user-friendly interface and robust backend functionalities. Ethical considerations are woven into the fabric of the system to ensure fairness, accuracy, and unbiased question generation. Continuous user feedback mechanisms are integrated to refine and optimize the system's performance over time. This project stands as a significant contribution to educational technology by offering a scalable and adaptable solution for generating high-quality MCQs across diverse subject domains. The fine-tuning of the question generation model and the creation of a specialized dataset exemplify a commitment to advancing the field, providing educators with a valuable tool for enhancing the assessment process in various educational contexts.

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