SnapQuiz Ai

Ai Project Report

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Submitted by:

Messam Naqvi

Department of Computer Science, New Campus
University of Engineering and Technology
Lahore, Pakistan

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Chapter 1

1 Report Synopsis

1.1 Introduction

SnapQuiz AI is a groundbreaking web application that leverages the power of modern web technologies to change the way educational quizzes are designed The application is designed with a React-based frontend for an intuitive and interactive experience of users, while But Flask backend ensures efficient data handling and processing

SnapQuiz AI provides two main methods for creating quizzes: question generation from website URLs and user-supplied information. Users can enter a URL, and the application will scrape and summarize web content, providing a shortened version that can be used as a basis for QA questions. Alternatively, users can add custom content directly to the application.

Another feature of SnapQuiz AI is support for varying levels of difficulty—easy, moderate, and complex—enabling teachers to tailor the complex questions to their students' needs. These changes make SnapQuiz AI suitable for a wide range of educational settings, from elementary education to higher education and vocational training. The backend built with Flask handles form submissions and integrates well with the frontend.

This documentation provides detailed instructions for setting up the application, including installing the necessary software, configuring the back and forth, and instructions on how to use SnapQuiz AI to create and administer quizzes effectively

1.2 Problem Statement

Creating educational quizzes manually from web content and custom text is a time-consuming and labor-intensive process. There is a need for an automated solution that can efficiently generate quizzes of varying difficulty levels from diverse content sources.

1.3 Objectives

To realize our project's vision, we have outlined the following concrete objectives to structure our work and measure our progress:

1. **Automate Quiz Creation:** Develop a system that automates the generation of educational quizzes from web content and user-provided text, reducing the time and effort required for manual quiz creation.

2. **Provide Difficulty Levels:** Implement functionality to create quizzes of varying difficulty levels (easy, medium, hard), allowing users to tailor the quizzes to different learning needs and skill levels.

3. **Enhance User Experience:** Design a user-friendly and interactive interface using React, ensuring a seamless and engaging experience for users while they input content, select quiz options, and view generated quizzes.

4. **Efficient Data Processing:** Utilize Flask and MongoDB to handle backend processing and data storage efficiently, ensuring quick and reliable performance of the application.

5. **Integrate Summarization API:** Integrate a reliable content summarization API to accurately extract and summarize web content, making it suitable for generating meaningful and relevant quiz questions.

1.4 Proposed Methodology

The SnapQuiz AI project will be implemented using a combination of front-end and back-end technologies to automate the quiz creation process from web content and user-provided text. The methodology can be broken down into the following key steps:

1.4.1 Frontend Development

The frontend of SnapQuiz AI will be developed using React, a popular JavaScript library for building user interfaces. The main tasks involved in frontend development include:

- **User Interface Design:** Create a responsive and user-friendly interface that allows users to input a URL or custom content, select the quiz difficulty level (easy, medium, hard), and view the generated quiz.
- **Form Handling:** Implement forms for URL and content input, and handle user interactions to ensure data is correctly captured and sent to the backend.
- **Dynamic Feedback:** Provide real-time feedback and updates to users as they interact with the application, ensuring a seamless and engaging user experience.

1.4.2 Backend Development

The backend will be developed using Flask, a lightweight Python web framework. The main tasks involved in backend development include:

- **Web Scraping:** Implement web scraping functionality to extract content from user-provided URLs using libraries such as BeautifulSoup or Scrapy.
- **Content Summarization:** Integrate the Aylien Text Analysis API to summarize the extracted content, making it suitable for quiz generation.
- **Quiz Generation:** Develop algorithms to generate quiz questions based on the summarized content and the selected difficulty level.
- **API Development:** Create RESTful API endpoints to handle form submissions from the frontend and return the summarized content and generated quizzes.

1.4.3 Integration and Testing

- **Integration:** Ensure seamless communication between the React frontend and Flask backend using Axios for HTTP requests.
- **Testing:** Perform thorough testing of the entire application to identify and fix bugs, ensure accuracy of the content summarization and quiz generation processes, and validate the user experience.

1.5 Results

The SnapQuiz AI project successfully implemented the automation of quiz creation from web content and custom text, providing users with quizzes of varying difficulty levels. The results are categorized based on the difficulty levels: easy, medium, and hard.

1.5.1 Easy Level Quizzes

For the easy difficulty level, SnapQuiz AI generates true/false questions. These questions are designed to assess the basic understanding of the content. The automated system identifies key statements from the summarized content and converts them into true/false questions. This level helps users quickly gauge fundamental knowledge of the subject matter.

1.5.2 Medium Level Quizzes

For the medium difficulty level, SnapQuiz AI generates multiple-choice questions (MCQs). These questions are formatted with two options (AB) or four options (CD). The system extracts significant facts, concepts, and details from the summarized content and constructs MCQs to test the user's comprehension and retention of the information. This level provides a balanced challenge, testing users on specific details and broader concepts.

1.5.3 Hard Level Quizzes

For the hard difficulty level, SnapQuiz AI creates long/short answer questions. These questions require users to provide detailed responses, demonstrating deeper understanding and critical thinking about the content. The system formulates questions that cover complex topics and encourage users to articulate their thoughts and explanations comprehensively. This level is aimed at advanced learners seeking to thoroughly explore and analyze the subject matter.

Overall, SnapQuiz AI offers a versatile and adaptive quiz generation system that caters to different learning needs and preferences, ensuring an effective and engaging educational experience.

1.6 Conclusion

The SnapQuiz AI mission demonstrates a successful integration of cutting-edge internet technologies to create an automatic quiz technology system from internet content and custom text. By leveraging React for frontend improvement and Flask for backend processing, the project offers a seamless and consumer-friendly interface for producing quizzes. The inclusion of numerous difficulty ranges—easy, medium, and tough—guarantees that the system can cater to a wide range of studying desires and preferences.

The implementation of genuine/fake questions for clean quizzes, more than one-preference questions for medium quizzes, and long/quick answer questions for tough quizzes permits SnapQuiz AI to provide various and complete assessments. The use of a content summarization API to extract and condense web content material complements the relevance and first-rate of the generated quizzes.

Moreover, the challenge's structure, which includes green information processing ensures sturdy performance . We make SnapQuiz AI available to users, presenting them with an powerful device for instructional and training purposes.

In end, SnapQuiz AI not best automates the quiz introduction manner however also complements the learning revel in by means of offering tailored assessments that adapt to the consumer's understanding degree. The venture's revolutionary method and effective execution spotlight the potential for future enhancements and packages within the area of educational generation.