Name: Ansh Aya | Email: aya.a@northeastern.edu | [NUID: 002196466]

Project Documentation

Project Name: Automatic Grading System

Abstract:

The AutoGrader system automates the grading process by leveraging AI and Large Language Models (LLMs) to enhance grading efficiency, consistency, and scalability. By integrating predefined rubrics, AutoGrader ensures fairness and transparency across diverse educational settings. Built using Microsoft Azure, LangChain, and Streamlit, it provides a reliable solution for modern educators. The next phase of this project will focus on further integrating the system to streamline grading from rubric generation to automatic grading, ensuring a complete, seamless grading experience for both educators and students.

Project Period

[07/21/2024] – [09/21/2024]

Repository and Documentation:

- **GitHub Repository:** Contains the source code and documentation of the AutoGrader. [Github Link]
- **Project Report:** Detailed project objectives, System architecture, and outcomes.[Report]
- **PowerPoint Slide Deck:** Summarizes key insights and system capabilities. [PPT]
- **Tutorial Video:** A step-by-step guide through building and deploying your own rubric generator application. [Tutorial_Video]
- **Application:** Interact with the current version of AutoGrader. [App Link]

Project Overview

The AutoGrader project has revolutionized the grading process by automating assignment grading using AI-driven technologies. The system evaluates student submissions based on predefined rubrics designed by educators, ensuring fair, accurate, and consistent grading. Key features include multi-format assignment support (PDF, DOCX, TXT) and real-time feedback for students. By leveraging Azure AI Search for efficient data management and LangChain for AI-based scoring, AutoGrader provides scalable and adaptable solutions for various educational institutions.

The system's integration with Streamlit ensures a user-friendly interface, allowing educators to upload assignments, generate grades, and review feedback efficiently. The continuous development and improvement of AutoGrader involve close collaboration with educators to enhance its usability and functionality, making it a reliable and essential tool in modern education.

Name: Ansh Aya | Email: aya.a@northeastern.edu | [NUID: 002196466]

Conclusion

In conclusion, the AutoGrader system has demonstrated significant potential to transform educational technology by automating the grading process. By ensuring consistent, efficient, and fair grading across a wide range of assignments, it addresses key pain points in modern education. The system's robust architecture, combined with advanced AI and scalable cloud technologies, ensures its reliability and long-term usability. The success of AutoGrader presents a strong foundation for the next phase of development, which will focus on enhancing and expanding its capabilities.

Request for Offer Extension

Following the successful completion of the AutoGrader project, I propose the next phase of development, which will focus on integrating rubric generation with automatic grading into a single system. This new extension will not only automate the grading process but also include an advanced agentic workflow to track grading activities and decisions, ensuring full transparency and auditability.

This extension aims to develop a unified system where educators can:

- Automatically generate rubrics based on assignment requirements.
- Automate grading using the rubrics, ensuring efficiency and accuracy.
- Track and log all grading activities for review and auditing, enhancing trust and accountability.

The advanced agentic workflow will allow us to:

- Keep detailed logs of all grading actions, such as rubric changes and grade adjustments, ensuring full transparency.
- Provide an audit trail to review grading consistency and fairness over time.

I am seeking an extension of my offer to continue this important work. The outcomes from the initial AutoGrader project have shown a clear impact on improving grading efficiency and reliability. By extending my offer, I will be able to integrate rubric generation and automatic grading into one comprehensive AI-powered solution, further advancing our goals of revolutionizing educational technology.

Thank you for considering my request. I am excited about the opportunity to continue contributing to this mission and advancing the future of education.